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Feedback interactions and Workplace Based Assessment in the surgical workplace

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**This thesis is submitted to the University of Warwick in
support of my application for the degree of Doctor of
Philosophy in Clinical Education**

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Declaration

Parts of this thesis have been published by the author:

Section 3: Basic demographic questionnaire data (appendix 3)

Section 4: Surgical trainees feedback seeking behaviour in the context of workplace based assessment (appendix 4).

Section 5: Playing the game; How do surgical trainees seek feedback using WBA (appendix 5).

List of data provided by collaborators, members of surgical research collaboratives were involved in the collection of the trainee and trainer questionnaire data.

Abstract

Introduction

Feedback is important for change in clinical practice. In the postgraduate clinical workplace opportunities for feedback are sporadic and non-standardised. Workplace Based Assessments were designed to offer trainees and trainers the opportunities to engage in feedback. WBA have a role as an assessment of learning and in practice settings the educational benefits of WBA remain elusive.

Research question; How do WBA impact on feedback interactions, between surgical trainers and trainees, in the postgraduate workplace?

Methods

This mixed methods study adopted an explanatory sequential approach to data collection and analysis. Quantitative, questionnaire data, guided qualitative, focus group, data collection and analysis.

Results

Trainees perceive WBA represent an assessment of learning compared to trainers. Trainers perceive they provide feedback to trainees more than trainees perceive receiving it. Trainees actively engage in seeking feedback via WBA and this relates to perceptions of the value of feedback, having a learning goal orientation and effective supervision.

Trainees' perception of WBA as an assessment of learning leads them to "play the game" and seek positive feedback and avoid negative feedback in the context of WBA. Outside of WBA trainees seek negative feedback which they use to change practice. Trainers described that the culture of WBA, the purpose of WBA as an assessment for learning and of learning, how WBA are used (properly v playing the game) and the trainer – trainee relationship are all interwoven. Activity Theory can illuminate the complex clinical dynamic in which feedback interactions take place.

Discussion

Feedback interactions in the context of WBA in the postgraduate workplace are highly complex. Trainees and trainers play an active role in these interactions and can choose to engage in meaningful feedback exchanges using WBA. Trainees concerns about the assessment for learning role of WBA adversely affects how WBA are used by trainees and subsequently trainers.

Abbreviations

ARCP Annual Review of Competence Progression

CBD Case Based Discussion

DOPS Direct Observation of Procedural Skills

EWTD European Working time directive

GMC General Medical Council

ISCP Intercollegiate Surgical Curriculum Program

Mini-CEX mini Clinical Evaluation Exercise

MMC Modernising Medical Careers

NHS National Health Service

PBA Procedure Based Assessment

PGY Postgraduate Year

SLE Standardised Learning Event

WBA Workplace Based Assessment

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1. Introduction

Postgraduate surgical training has undergone major changes in the last 20 years. The NHS has changed dramatically with a move to consultant led care and the introduction of waiting time targets (1). The structure of postgraduate training has also changed (2). Postgraduate training has become more structured with the implementation of a postgraduate curriculum in surgery (3) and the requirements for assessment of trainees in the workplace (4). The maximum number of hours trainees can work has also reduced during this time, from approximately 100 hours/week to 48 hours/week (5, 6). Despite these changes the educational relationship between a surgeon and their surgical trainee remains central to postgraduate workplace learning in surgery.

In the following sub-sections the contextual scene of postgraduate surgical training is set, followed by a consideration of the educational relationship between surgeon and surgical trainee, the role activity plays in workplace learning and the impact feedback interactions can have on these learning opportunities.

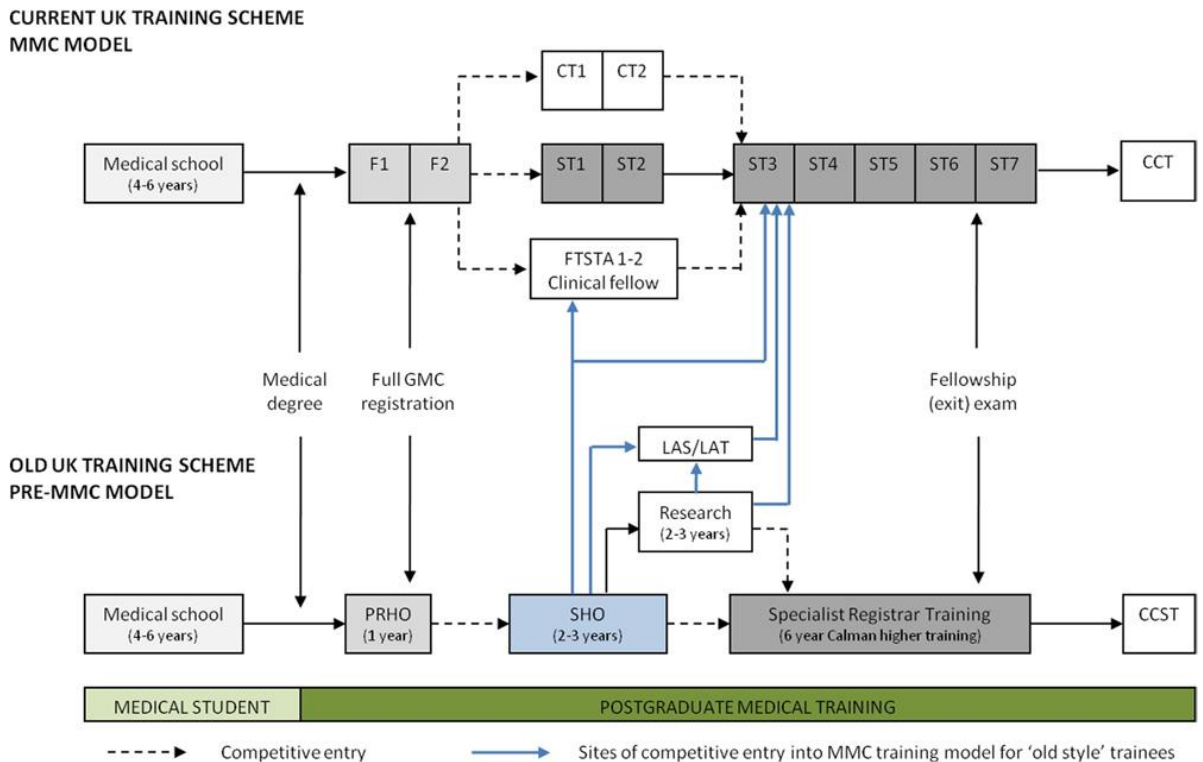
Setting the Scene

This section will briefly outline the current structure of surgical training in the UK, the move to a competency based model of surgical training and the continued reliance by surgeons on an apprenticeship model of surgical training.

The current structure of surgical training in the UK

After completion of two years of foundation training (Postgraduate year (PGY) 1 and 2) junior doctors actively compete for recruitment into core surgical training (PGY 3 and 4). During this time, they rotate at four monthly intervals through a variety of surgical specialities. There is then competitive entry into speciality training. Specialist trainees (PGY 5 to 10) are usually attached to two consultants on an annual basis based on an apprenticeship style model of training. This structure of surgical training (figure 1) was introduced in 2007 as part of the Modernising Medical Careers (MMC) reforms which aimed to streamline postgraduate medical training and base training upon a defined program of curriculum and assessment (2).

Figure 1. Current structure of surgical postgraduate training compared to the pre MMC model (7).



A competency based model of surgical training

The Royal College of Surgeons unveiled the Intercollegiate Surgical Curriculum Programme (ISCP) in 2007 to coincide with the restructuring of surgical training due to MMC. This provides a web based written curriculum for surgical trainees and their trainers from completion of the foundation years through to consultant level. It allows surgical trainees to create an interactive online portfolio which links directly to the syllabus, assessment forms and logbook for their chosen speciality and stage of training. This portfolio is then used as the basis for the trainees' annual assessment (Annual Review of Competence Progression, ARCP) (3).

The curriculum was initially blueprinted to the seven generic roles of a doctor identified in the CANMED model (8) but is now blueprinted to the General Medical Councils Good Medical Practice Guide to include non-technical as well as technical skills in the curriculum (9).

As part of this competency model trainees' complete workplace based assessments (WBA). WBA were designed to assess "does" at highest level of Millers Pyramid (10). It is

suggested WBA should be considered a performance based assessment rather than an assessment of competence (11) as they are undertaken within authentic practice settings, the clinical workplace and so reflect individuals true performance rather than their maximal competence in controlled situations. In the UK context, WBA have been defined by the GMC as *“assessments for learning rather than assessments of learning”* (12).

This means to help trainees to learn rather than assess what is already learnt or known. This issue in itself is contentious as there is very little evidence that assessment actually guides learning (10) though some work is being done in an undergraduate summative setting currently (13). The GMC states that WBA have a purpose as a formative and summative assessment (12).

Formative = “learning through constructive feedback that identifies areas for development” (12)

Summative = “determining a level of competence to permit progression of training or certification” (12).

Within the surgical curriculum there are different types of WBA (appendix 1). Some aim to assess what trainees can do as part of their routine clinical practice compared with what senior doctors think they should be able to do at their level of training (Procedure based assessments or Direct observation of procedures, mini Clinical evaluation exercise). Other types of WBA are based on discussion of patient cases with senior doctors (Case based discussions) or obtaining feedback about performance from individuals throughout the multidisciplinary team (Multisource feedback). Procedure based WBA involve a junior doctor carrying out an activity which forms part of their normal job e.g. taking blood from a patient or taking a history from a patient. They are observed undertaking this procedure or activity by a more experienced doctor (consultant or senior registrar). The trainee then receives feedback from their senior colleague on how they performed the task and areas which they could improve on for the future (4). Currently surgical trainees (ST3 +) are mandated to complete between 50 and 80 WBA per year. This number being set on a regional basis.

Though competency based models have been widely implemented in postgraduate medical training across the world (14) there appears to be limited evidence (15) to substantiate any

improvement in training and patient care using these models compared to traditional time and process based curricula (16). A recent evaluation of the ISCP highlights that,

“Paradoxically, ISCP is a wonderful conceptual metaphor for highlighting the way that surgery is more than operating and that surgical practice takes place within a system that has ways of doing and ways of being a surgeon. It is unfortunate that ways of being a trainee with ISCP are not seen in relation to the ways of being a consultant surgeon and experiencing surgery” (p23)(17).

Though a postgraduate curriculum and assessment package has brought structure and accountability to surgical training this has been at the expense of the educational relationship between surgeon and surgical trainee.

The apprenticeship model of surgical training

Despite the change in the structure of surgical training there is still a heavy reliance amongst surgeons (18-20) upon the apprenticeship model of training. This model traditionally involved trainees acquiring *“clinical competence...in the reality of supervised practice, with the experienced clinician [consultant] guiding reflection and exploration of learning from the real cases and the problems those cases present”* (21). This experiential model of training relied upon trainees spending long hours at work delivering service during which they were able to develop their skills and knowledge (18). Although the structure of surgical training has changed often consultant surgeons ideas about how to train surgeons have not and consultants still feel that the best way to train junior doctors is by the system that they themselves experienced (18, 19). This apprenticeship model is under threat from the competency based model of training *“ISCP has been allowed to displace informal training and deskill trainers in the art of surgical apprenticeship”* (p47) (17).

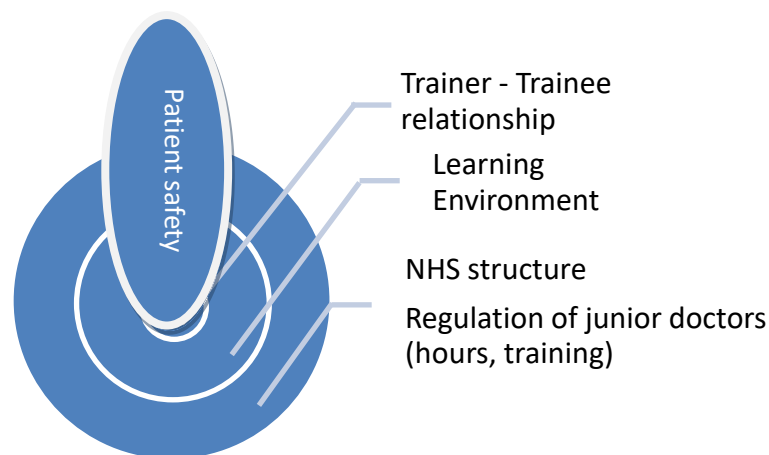
The Educational Relationship between Surgeon and Surgical Trainee

The relationship between the surgical trainer and trainee is central to effective learning in the surgical workplace. The Oxford School of Surgery describe this relationship as the *“building block of sound surgical education”* (7). The traditional apprenticeship model of training has now been subsumed within a competency or outcomes based approach to train the surgeons of the future. Though there are calls to *“Affirm the dialogic nature the trainer/ trainee relationship and reframe this as one of mentorship and apprenticeship”* (p60)(17) in a recent evaluation of current, competency based, surgical training. Ultimately

surgical trainees will continue to learn technical and non-technical skills from their trainer to become competent surgeons.

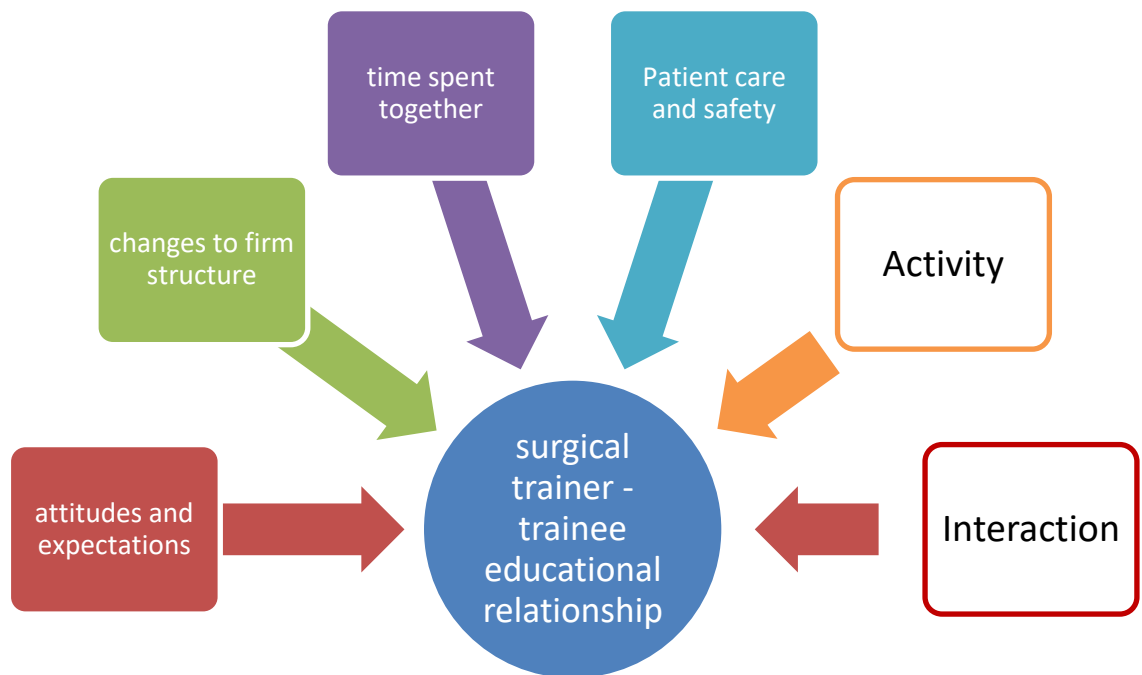
The educational relationship between the surgical trainer and trainee is impacted upon by several external factors. These include factors which influence the workplace learning environment, the wider impact of NHS policy, the regulation of junior doctors working patterns and training and finally underlying responsibilities to patient care and safety (figure 2). All these factors are important influences on learning in the surgical workplace but the relationship between the surgical trainer and their trainee lies at the heart of this.

Figure 2. External factors affecting the trainer trainee relationship



The trainer trainee educational relationship itself is affected by a number of contextual factors. These include the cultural attitudes and expectations of these two groups of individuals, changes to firm structure and time spent together (figure 3). Context in medical education is discussed by Durning as involving interaction between participants, the setting (or location) and time (22).

Figure 3. Factors affecting the educational relationship between the surgical trainer and trainee in the workplace.



Cultural attitudes and expectations

Consultant surgeons' experiences as junior doctors and those of their current surgical trainees are very different. Consultants experiences as a trainee are described in a qualitative life story study as involving *"long hours, personal sacrifices..self-reliance and independence"* and so consultants expect a similar level of personal sacrifice from their trainees' (20). Trainees reportedly place more weight on formal teaching and interaction with consultants or colleagues. In a study of how hospital interns (PGY 1) engage with learning in the workplace it was reported that *"learners needed to feel valued and the supervisors needed to be approachable"* (21). Therefore, trainees have an expectation that they will engage with and be actively taught by their trainer. This is not the experience that their trainer may have had during their own training. This reflects a dichotomy in the perceptions and expectations of trainers, who expect personal sacrifice and commitment from their trainees as they themselves experienced (18) and trainees who expect that they will be actively "taught" and be involved in a team (23).

Changes to the structure of the surgical firm

The traditional surgical team or firm consisted of several trainees at differing levels of their postgraduate training working for a single or pair of consultants. The firm would typically

provide an elective service and be on call, providing out of hours cover, as a single unit. This firm structure has been described as leading to a strong “team spirit” and system of mentorship where consultants felt responsible for the education and training of the junior doctors attached to their team (24).

There is some evidence in the literature that this traditional firm structure has been lost or eroded (20, 24, 25) due to changes in trainees working patterns. This loss of the firm structure is important in the situation of reduced contact time between consultants and trainees’ opportunities for learning in the workplace are reduced. For example there is less time available for trainers and their trainees to discuss clinical cases and surgical trainees are felt to be present in theatre less often by their trainers since the implementation of working hours restrictions (20).

As well as the perceived or real loss of the firm structure increasing pressures are being placed upon trainers to be involved in more formal educational arrangements with their trainees. This takes the form of educational supervision and the completion of WBA and appraisals. Several studies have found that Consultants feel that their contract does not allow for remuneration nor recognition for the time they spend teaching junior doctors by hospital management (26, 27).

Time spent together in the workplace

The time surgical trainers and trainees now spend together is now limited by junior doctor working hour restrictions. A combination of UK and European legislation has meant that junior doctors working hours have reduced from approximately 100 hours per week to 48 hours per week in the past decade (28). This reduction in time spent together engaging in workplace activities has reportedly had a negative impact on training (18).

There are many reports in the surgical literature about the impact of reduced working hours on operative exposure using logbook data. One study found that SHOs working a shift rota were exposed to a median of 74 (13–166) elective operations over six months compared to 109 (28–302) elective operations by those working an on-call rota (average of 72hrs/week) ($P=0.037$). This reduction in caseload partly reflects the introduction of shift working but also an increase in the numbers of SHO’s in the department during the course of this study (29). However, the literature is inconclusive with other work suggesting either

a reduction in operative experience (30) or no change in caseload (31) after the implementation of training hour restrictions. This may reflect a combination of local working patterns, trainees not complying with working restrictions in order to gain operative experience (32), the probability that hours at work don't equal hours of patient contact or learning (33) and other confounding factors including case mix in acute NHS hospitals (34). Furthermore a very small study has shown it may be possible to achieve surgical competence within the confines of a 48 hour working week (35). In summary this suggests that a reduction in the time available to train cannot be solely responsible for reduced perceived training opportunities.

Patient care and safety

The relationship between the surgical trainer and trainee is underpinned by the shared responsibility for ensuring patient care and safety. The GMC states that *"Patients need good doctors. Good doctors make the care of their patients their first concern"* (9). This document also states that *"Teaching, training, appraising and assessing doctors and students are important for the care of patients now and in the future"* (9). All doctors, consultant surgeons and trainees, have a shared primary responsibility to their patients. This responsibility may impact on the relationship between the surgical trainer and trainee in balancing patient care and safety against the training of junior surgeons.

Patients are becoming increasingly aware of the quality of the care they receive and what members of the medical profession are directly involved in their care. Public expectations of health care in general are rising (36), the NHS has moved to a model of consultant led care (37) and surgeons are becoming increasingly accountable to patients with the publication of operative outcome data in a number of surgical specialities (38). These factors have contributed to a perception by patients that consultants will be primarily responsible for their care whilst in hospital. This may impact on the ability or preference of the surgeon and patient to involve surgical trainees in their care both intra and peri-operatively (39, 40).

The Role of Activity in Workplace Learning

This section focuses on trainers' and trainees' perceptions of workplace activities as representing an opportunity for learning or work and relevant educational theory exploring the role of activity in workplace learning.

A qualitative report into the impact of working hour restrictions on surgical training reported that trainers thought that all activities represent an opportunity to learn in the workplace and trainees thought a lot of workplace activities solely represent work with no opportunity for learning (41) in (19). This is highlighted in the following quotes,

"I still am learning from virtually every patient I see.. .we're all life-long learners and the opportunities are there. This thing of 'oh that's service provision, it's not training' is a complete fallacy" (Consultant)

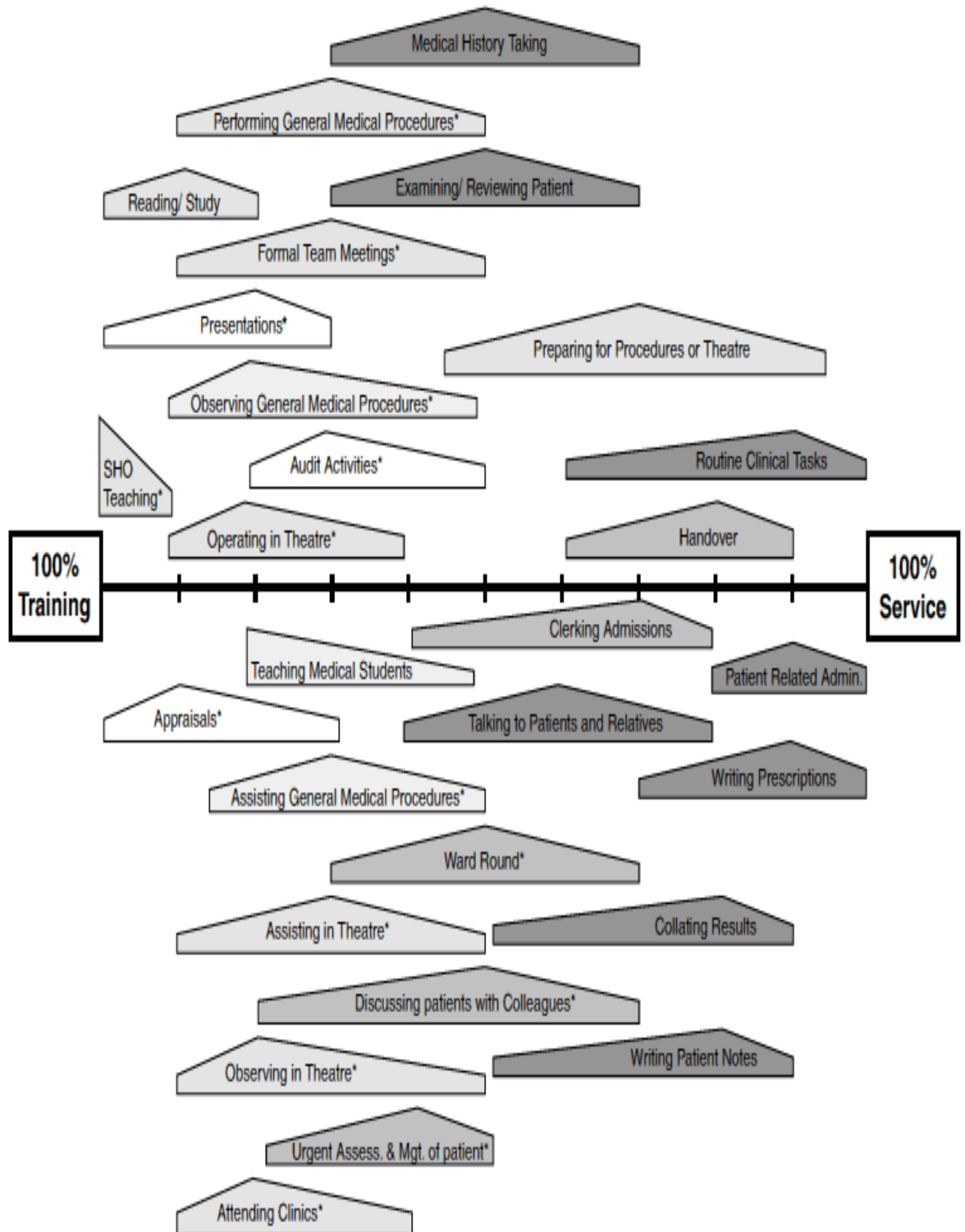
"There's definitely a conflict of interest. I've found it in the post I'm doing at the moment between providing service and training opportunities....the emphasis seems to be on service and seeing patient which is obviously important but obviously that has a knock-on effect on training opportunities." (SHO)" (41).

This theme was not explored further as part of this project but suggests that trainers and trainees hold very different perceptions of the role of specific workplace activities in learning.

Trainees' ideas about whether specific workplace activities represent an opportunity for learning or work is reported. A single centre UK questionnaire study, response rate (40%), asked junior doctors to rank activities along a spectrum of training (learning) to service (work) (figure 4) (42). A further American based study reported that trainers scored all activities as representing an opportunity for training (learning) more highly than their trainees (43).

The low response rate for both questionnaires mean this data must be considered with caution. Despite this, these results provide an interesting insight into the concept that specific workplace activities can represent either learning (training) or work (service) to junior hospital doctors.

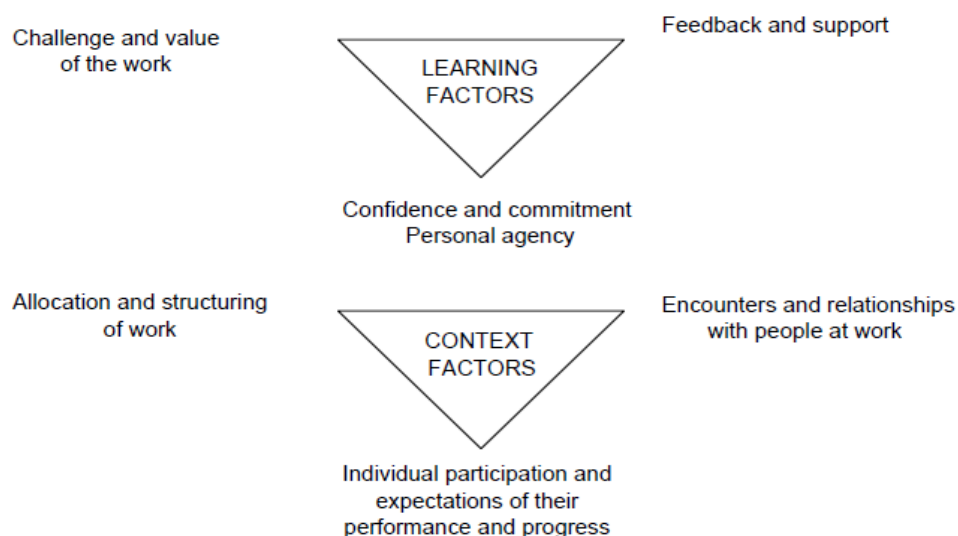
Figure 4. This figure shows where junior hospital doctors (in all specialities) recorded workplace activities along a continuum between training and service (42). Activities marked with * were more likely to be supervised and darker colours reflect activities performed more frequently.



Workplace activities have a central role to play in learning in the workplace (44-47). A review of research regarding workplace learning supports the notion that participation and learning occur at both individual and group levels (48). Therefore, learning in the workplace is not solely an individual undertaking but also relies upon interaction with colleagues.

Individual and contextual factors are important in workplace learning (Fig. 5). Workplace learning is informal and triggered by consultation and collaboration with colleagues or by the challenge of the work itself (45). The idea that learning at work occurs through engagement in workplace activities and interactions with colleagues is supported by others who describe that learners are able to engage in learning depending upon what workplace activities they are permitted to do by colleagues and whether individuals choose to engage in these activities (47). These studies conceptually sit within sociocultural theories of learning. These theories suggest that individuals learn through engaging in workplace activity mediated by others and cultural artefact (49). Activity Theory holds that learning occurs through activity and this activity is critical to learning (50). Others within the sociocultural movement went on to develop thinking about the importance of the role of interactions with others in undertaking workplace activities. Lave and Wenger developed the concept of “legitimate peripheral participation” whereby new members of a group interact in a graduated manner with the activities and cultural practices of the group to legitimise their role (51).

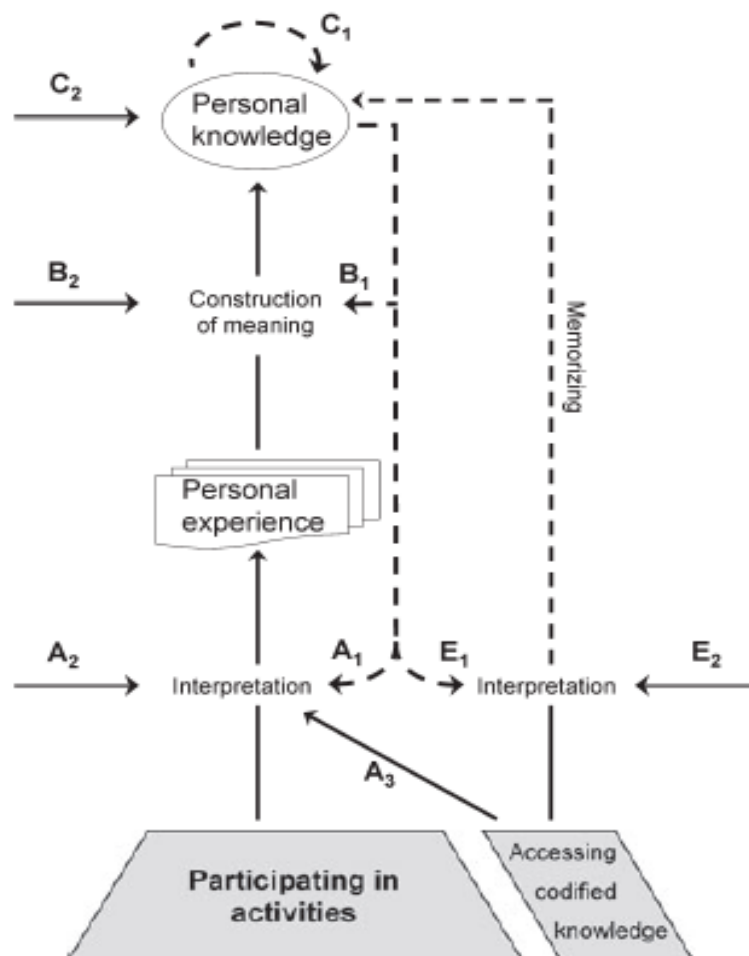
Figure 5. Conceptual model of factors that affect workplace learning in early career professionals (nurses, accountants, engineers) (45).



The central role of activity in workplace learning is also described in the medical education literature. The following model was generated as result of a study of how postgraduate Obstetric and Gynaecology trainees in the Netherlands learnt based upon participation in workplace activities (figure 6) (52).

Figure 6. This model describes a framework of learning in the clinical workplace (52).

Interpretation, judging to gather information from workplace activities, relates to A1 = personal frames of reference or personal knowledge. A2 = views of others and contextual factors. A3 = readily available codified knowledge. Construction of meaning, “what do I learn from this” depends upon B1 = personal experiences, B2 = external views or contextual factors though these are not always consistent with trainees’ construction of meaning. Reflection on personal knowledge relates to C1 = pre-existing personal knowledge or C2 = external triggers to reflection. Codified knowledge, what is known from text/literature, E1 = how this knowledge relates to individuals’ frames of reference. E2 = external activities which specifically seek to critically interpret codified knowledge



This study supports the notion of the central role of activity in workplace learning in medicine. However participant trainees were taken from a single sub-speciality and were asked about how they learnt new knowledge only and their actions and behaviours were not examined. The authors themselves state that a more detailed understanding of how external influences impact on this model would be valuable. Therefore, this model supports the centrality of activity to workplace learning but the impact interaction with colleagues has on this model remains unknown. Further studies in the undergraduate medical setting cite that participation in workplace learning is dependent upon interaction with colleagues (21, 53) and the individuals state of mind (53).

If activity is important to workplace learning how do trainees recognise these activities as representing an opportunity to learn? A single study describes how trainees use a series of “learning cues” or sources of information to help interpret experiences to use them to construct knowledge. These cues for learning include feedback, role models, clinical outcomes, patient or family responses and comparisons with peers. The model suggests that only cues which are judged to be credible by the trainee become influential in shaping learning. Credibility was judged on the source of the information, how this information aligns with the learners’ personal and professional values and clinical outcomes. This study provides interesting and potentially insightful results into how trainees use activities to learn in the workplace however qualitative data was collected retrospectively from a single academic institution. This data was dependent upon the recall of individuals more than five years after completion of their training. Therefore, it is likely that the events they recall as being significant may be memorable for reasons other than they precipitated learning or they are extreme instances or cases where learning occurred and may not be representative of their learning overall. Secondly individuals who trained from within a single institution may be subject to institutional specific factors which have affected their learning (54).

In summary the literature suggests that trainees view specific workplace activities as constituting an opportunity for learning or work (42) and that these perceptions are different amongst trainees and trainers (19, 43). Educational research supports the idea that activity is central to learning in the postgraduate workplace (52, 54). Whether these activities are used by trainees to help them learn may be dependent upon a number of factors including interaction with colleagues (21, 53) and whether the trainee judges these interactions around activities (54) to be credible enough to trigger learning. These factors may provide clues as to why *“Learners, however, are sometimes more aware of lectures and courses as learning opportunities than they are of the “on the job” learning opportunities that they face all day”* (55) and suggestions that what we think about learning influences where we recognise learning (48).

Interaction through Feedback in Workplace Learning

Interaction around activities in the workplace takes place through working with colleagues to solve tasks and engaging in feedback encounters. This work will focus on interaction through feedback. This is because feedback represents a specific situation where interaction between colleagues occurs. Feedback therefore may be more readily described or remembered by study participants than other interactions. Importantly feedback has been shown to be an important influence on subsequent clinical performance (56, 57). Therefore, feedback represents a situation where intervention could be made to improve workplace learning encounters for trainees and trainers.

Feedback has been defined as *“specific information about the comparison between a trainee’s observed performance and a standard, given with the intent to improve the trainee’s performance”* (58). This definition is based upon a review of medical and social science literature. It considers feedback a transmission message from the teacher to learner to guide trainees in improving their performance.

Feedback can also be considered as an act of the learner in which teachers participate, therefore suggesting feedback has a co-constructed meaning (59). Feedback is considered at a collectivist rather than individualistic level, can be from many sources not just teachers and does not occur in relation to isolated experiences but to a programme of development. This leads to a definition of feedback as *“... a process whereby learners obtain information about their work in order to appreciate the similarities and differences between the appropriate standards for any given work, and the qualities of the work itself, in order to generate improved work”*(60). This reflects the thinking that feedback is a two-way communication of information sought by the learner not a telling of information given by the teacher or trainer.

Feedback effect

It is important to consider the evidence relating to the effect that feedback has on future performance. In an education setting feedback has been shown to have a positive effect on future learning; in a formative setting (61) and with a high effect size (0.79) overall in educational setting, though the effect was very variable with highest effect size in studies where individuals received task specific information and information about how to improve performance (57). Other work suggests that feedback is effective at improving student learning and students who receive feedback have a better approach to learning (62).

However one large scale historical review suggests that feedback has a small positive effect or a negative effect on future learning (63).

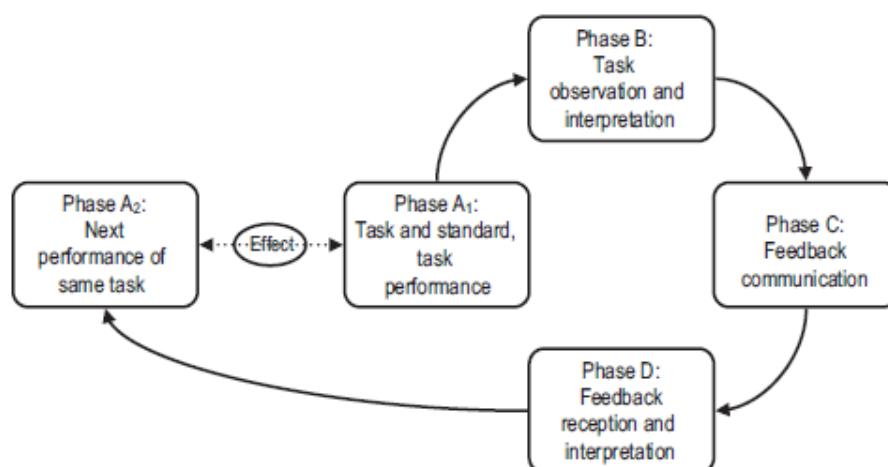
A review in the context of medical education reported feedback had a positive influence on subsequent doctor performance in nearly three quarters of studies (56). Furthermore a systematic review of the feedback literature suggests the effect of feedback is mixed due to the large numbers of variables that can affect the process and outcomes of feedback (64).

Feedback Process

The process by which trainees and trainers engage in seeking and providing feedback will now be explained in greater detail. There are several models of the feedback process described in the medical educational and organisational psychology literature. I have used three models as examples here.

The following model of the feedback process is based on a systematic review of the feedback literature until 2012 (figure 7). Phase A1 relates to the general context, task to be performed, the task standard and task performance. Phase B relates to the trainers' observation and interpretation of the trainees' performance of the task. Phase C relates to communication of the feedback message from trainer to trainee. Phase D deals with trainees' reception and interpretation of feedback. The effect of feedback is seen when the same task is next performed, Phase A2 (64).

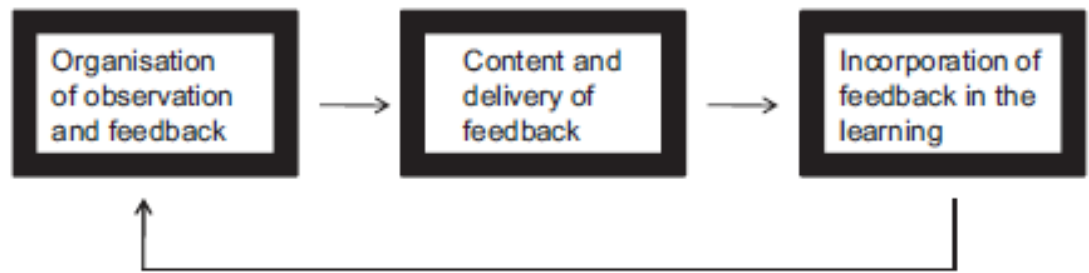
Figure 7. Model of the Feedback process (64).



This model incorporates the role the trainer and trainee play in feedback interactions and the cyclical nature of feedback and learning. However, in only considering systematic evidence, meta-analyses and literature reviews in this study then well conducted qualitative studies have been excluded from this analysis, as well as all work undertaken after 2012. This model does not explore directly the antecedents to feedback interactions, in terms of what happens before the task is performed. This maybe more relevant in the context of assessment where participants should be aware that there is a requirement on them to plan and then provide trainees with feedback by engaging in feedback interactions. Nor does this model consider whether feedback interactions occur in formal or informal settings. Feedback doesn't occur in a vacuum and the context of these encounters is important to how feedback interactions happen and are perceived. In this model only one factor in Phase A refers to the context of when the initial task is performed. Phase C reflects a transmission of information stage with all variables in this stage relating to the feedback provider.

In the context of workplace assessment, a three-stage model of the feedback process has been described (figure 8). This model was developed from a qualitative project exploring Dutch GP trainees' use of workplace based assessments to gather performance feedback. All workplace based assessments were formative though some participants were mandated to complete some assessments within their GP placements. The model of the feedback process describes that some trainees and trainers planned training routines and observations whereas for other trainee-trainer pairs feedback interactions occurred spontaneously. Often this step of the feedback process did not occur. Secondly in some circumstances specific feedback was delivered allowing trainees the opportunity for reflection and the chance to consider areas for improvement whereas in other situations non-specific feedback was given which was not useful. Finally, some trainees were able to relate feedback to pre-determined learning goals or use feedback to generate new goals. This feedback process was influenced by the trainees attitude towards observation and feedback i.e. many trainees felt threatened by observation though some trainees overcame these fears and sought observation and other trainees allowed their fears to prevail and avoided observation (65).

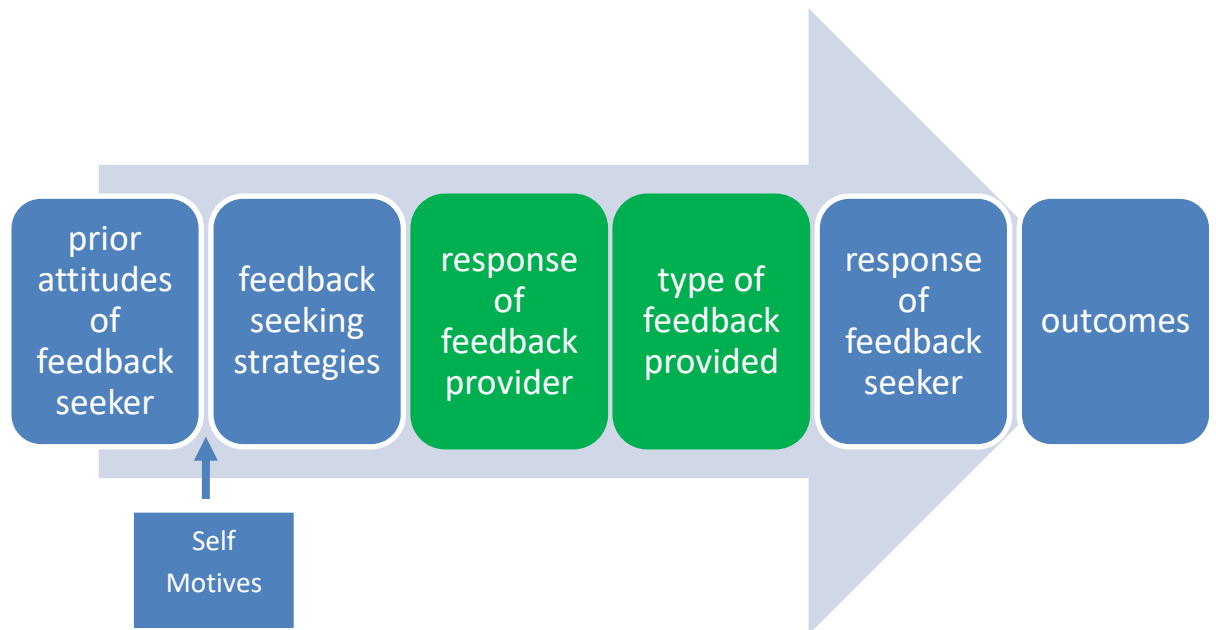
Figure 8. Feedback process in the context of WBA (65).



This study is important in highlighting that in a specific context, postgraduate general practice training, the organisation of the feedback process can affect the outcomes of feedback in terms of learning for change in practice. The process described here bears similarities to that described based on systematic review of the literature. Interestingly both models focus on the trainer driven provision of feedback information to the trainee with the trainee being left to incorporate this feedback into their future learning or otherwise. Neither model fully explores the importance of the clinical context or culture of feedback within the department, community, in which these feedback interactions occur.

To explore feedback seeking from the trainees' perspective, the organisational psychology literature has been consulted. This body of literature focuses on the active role individuals play in seeking feedback in the workplace. In considering feedback from the workers, or learners, perspective organisational psychologists have devised the following model of the feedback process (figure 9) (66).

Figure 9. Feedback process considering learners as active seekers of feedback adapted from (66).

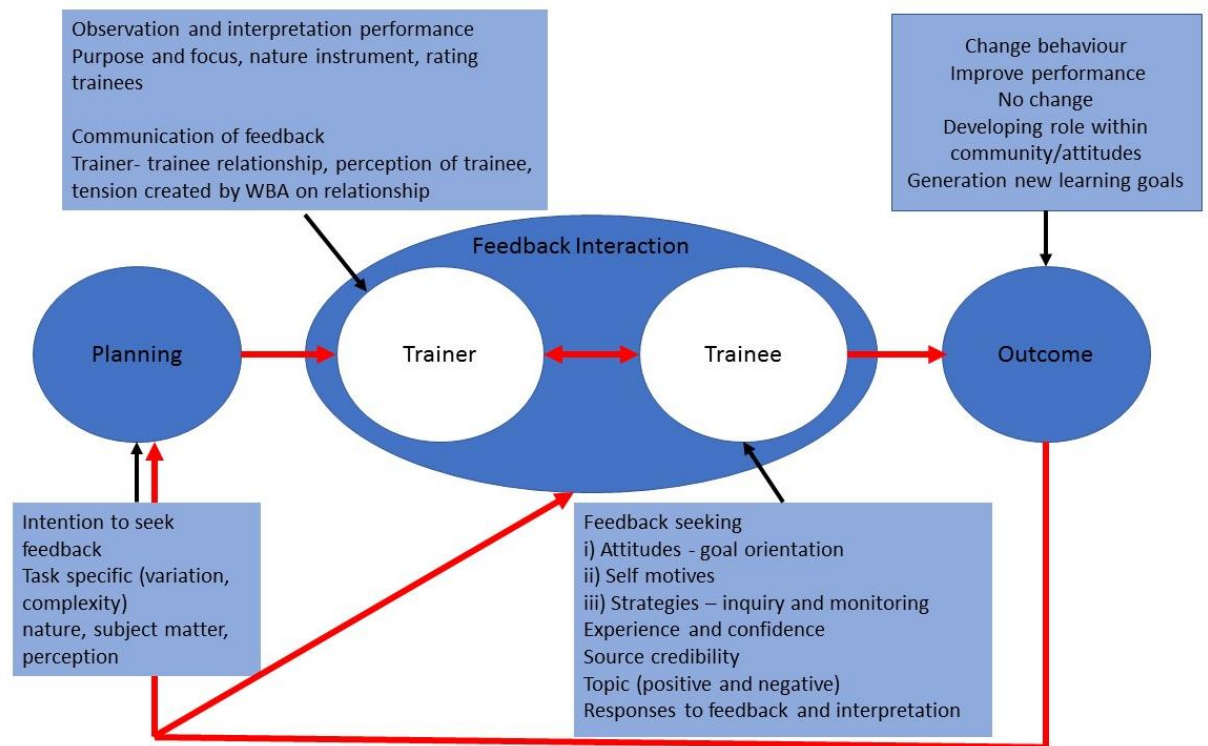


This process describes that learners’ previous experiences of seeking feedback and their motivations affect the strategies learners use to seek feedback. They then interact with their superior or trainer and elicit a response and feedback in some form. Learners then respond to this feedback and determine whether they will use this feedback for future learning or otherwise. This consideration of learners as active engagers in seeking feedback enables feedback to be considered from the learners’ position as well of that of the trainers which is traditionally described in medical education.

From process to feedback interactions

The feedback processes discussed above characterise many important factors in the ways in which feedback happens in the workplace. These models represent linear steps in a process however feedback essentially represents a complex interaction between trainer and trainee. Both parties bringing their own beliefs and perceptions to such interactions. Both parties make judgements about the clinical capabilities of the other before engaging in a two-way feedback communication. This communication is tempered by the relationship between the participants and the clinical context in which the interaction takes place (figure 10).

Figure 10. Feedback Interactions in the context of Workplace Based Assessment
developed as part of this work as a synthesis of the published literature.



Factors affecting feedback interactions

The figure above shows, with reference to the literature, factors affecting feedback interactions between trainers and trainees. These include a planning phase, trainer and trainee factors affecting the feedback interaction and ultimately the outcome of feedback, whether this leads to change in practice or otherwise.

These factors will be discussed here briefly but in more detail within the relevant sections of this work.

Planning phase

This describes trainees and trainers Intention to observe and receive feedback. A single qualitative study suggests that within the context of WBA this planning phase though important was not frequently undertaken (65).

Task specific information is also relevant to this planning phase with review evidence suggesting that the number of different tasks to be performed, the complexity of the task, the subject of the task and trainers and trainees perceptions of the task being important (64).

Trainees involvement in planning feedback interactions relates to their attitudes towards learning, goal orientation (67), and motives for seeking feedback (68). These affect the strategies they employ when seeking feedback and will be discussed further in the trainee section (Feedback seeking behaviour in section 4 and self-motives in section 6).

Trainer factors

Trainers are actively engaged in the observation and interpretation of trainee performance. They then act to engage in feedback interactions with trainees to communicate their feedback message. Trainers behaviour in the provision of feedback reportedly relates to internal trainer factors, trainee factors and organisational or cultural factors (69).

The ways in which trainers observe and interpret trainee performance relates to the purpose or focus of the workplace task being observed, the nature of assessment methods used and the ways in which they rate trainees.

Trainers communication of the feedback message with trainees relates to their perceptions of the trainee they are interacting with, whether trainees have insight into their own strengths and weaknesses (70) and are motivated to learn (71). The trainer – trainee relationship is of paramount importance to trainers in communicating with trainees (70-74). A positive relationship enabling trainers to feel more comfortable providing feedback to trainees (70, 75). However this positive relationship also causes anxieties for trainers who express concerns about damaging their relationship with trainees by providing genuine feedback (76). This is reflected in the tensions trainers describe in maintaining their educational relationship with trainees whilst having to act as assessor in the context of WBA. The literature in this area is expanded in Section 7.

Feedback communication

Much work has focused on important characteristics of the feedback communication or message. Ende describes characteristics of the feedback message that make it more conducive to learning. These include providing specific feedback, giving digestible quantities of feedback and using language that is non-judgemental to the trainee (77). This is supported by research suggesting that trainees felt “*Feedback considered good or helpful was specific, timely, actionable and credible*” (78). Evidence also suggests that the method used to deliver feedback (in person, electronically) within an educational setting or formal meeting, information included within the feedback message and organisational factors

including the timing of feedback in relation to the task observed, the frequency in which participants engaged in feedback interactions and the intensity or strength of feedback interactions were important for effective feedback communications (64).

Trainee factors

Trainees can choose to actively engage or disengage in seeking and acting on feedback (65). Contemporary organisational psychology suggests there are several aspects to how trainees seek feedback; the method used to obtain feedback (inquiring directly or inferring), frequency, timing, the characteristics of the trainer and trainees' perception of the feedback topic (positive or negative) (68).

Few studies have investigated trainee feedback-seeking behaviour in a clinical setting. Research involving Obstetrics and Gynaecology trainees in the Netherlands suggests that residents do actively seek feedback which was related to their perceptions of the personal benefits and costs to feedback (79). Qualitative work with undergraduate veterinary students highlights personal, interpersonal and influencing factors (ego, image and perceived feedback profit) which affect trainee feedback-seeking behaviour (80). (Feedback seeking behaviour will be explored in more detail in section 4).

Trainees' receptivity and use of feedback depends on their judgement about feedback provider credibility (54, 81-83), the length of their educational relationship (80), how feedback compares to other sources e.g. patient and self (54, 81) and trainees experience and confidence in the task being observed (81). One qualitative study reported that trainees tended to discount feedback that was given when the trainee had not actually been observed by the feedback provider and the recipient felt the feedback provider did not understand their role (81). Internal tensions, tensions between trainers and trainees, and within the clinical environment (76) arise when feedback is not consistent with self-perceptions of performance.

Trainees responses to feedback have been considered in relation to personal regulatory theory. This theory suggests individuals are motivated by either a promotion focus, achievement of rewards, aspirations and accomplishments or prevention focus, avoidance of punishment, obligations and responsibilities (82). This research suggested that promotion focus is important particularly at times of transition in training, when learners had new goals and aspirations where it referred to influential positive feedback. Prevention focus related to high stakes exams where error avoidance was critical. In this situation negative feedback was valued more than positive feedback. This theory was not

universally applicable with a mixed regulatory focus being apparent in the same encounter, changes in individuals' perceptions of the focus over time and pressure from other influences on responsiveness to feedback, source credibility, playing a role (82).

The feedback topic also affects receptivity and use of feedback. Research suggests that individuals have a tendency to trust positive feedback, attributing this to their own skills and attribute negative feedback to external, situational or patient factors (81). Work described earlier exploring the processes by which trainees use WBA to gather feedback suggests that trainees' reactions to observation are primarily emotional (65). Receiving feedback is not emotionally neutral with suggestions of a "*psychological immune system*" being implicated in explaining why in some situations feedback is not sought or not recognised as valuable (84).

The clinical context

The importance of the clinical context cannot be under-estimated. The first section of this introduction has focused on the context in which feedback interaction takes place within the surgical clinical workplace. The unpredictable and varied ways in which learning and feedback occur through engaging in workplace activities in medicine are probably unique amongst the professions.

The culture within a clinical unit and in medicine overall is relevant to feedback interactions. Work comparing feedback in medicine where doctors had experiences as elite athletes and musicians suggests that learners were less often provided with action plans to change their performance for next time in medicine compared to other professional groups (83). Furthermore, that in medicine there are few expectations on clinicians as medical teachers and that feedback is less expected in medicine compared to other professionals, musicians and athletes. This qualitative study described here suggested that by directing trainers and trainees attention towards certain dimensions of performance a learning culture could be promoted in medicine whereby conditions and opportunities that allow good feedback to occur and learners to respond (78).

Outcome of feedback

The outcome of feedback depends upon a combination of all the factors mentioned above. Evidence suggests that feedback is important for learning based on review evidence (56). Though it is clear that not all feedback leads to change in practice or the generation of new learning goals. Factors which to date have been shown to lead to a feedback effect include when trainees have low initial skills at a specific task, feedback is non-threatening and

consistent with trainees' desire for feedback. Feedback is delivered in combination with other educational interventions, is specific and given frequently (64)

Tensions in feedback interactions

Feedback interactions in a clinical setting is a potentially complex exchange with trainers and trainees bringing their own perceptions and expectations of one another to this situation. This complexity may help to explain the results of studies which show that trainees and trainers have reportedly different perceptions of whether feedback happens in the workplace. In a questionnaire study undertaken in America (60% response rate) 90% surgeons felt they gave effective feedback to trainees compared to 16.7% trainees who felt they received feedback. Both groups agreed that follow up was seldom arranged to verify that changes based on feedback were implemented (85). This is despite the same individuals been involved in the same feedback encounters.

The role of WBA in the provision of feedback

This work explores feedback interactions in the context of WBA. This has been chosen as the focus of this work because interactions around WBA are specific instances where trainers and trainees engage in a feedback interaction. Indeed one of the primary purposes for which WBA were designed was to enable trainees to gather formative feedback for learning (12). These encounters are readily identifiable by both trainers and trainees as instances where feedback could occur and therefore more obvious to participants and potentially more amenable for investigation. WBA are performed by all surgical trainees and a significant majority of surgical trainers therefore this study could recruit from a large population base and have educationally relevant outcomes for surgical trainers and trainees in general. The literature suggests that trainees value the opportunity for feedback that WBA provide (86, 87). Trainers have also commented that structuring feedback to trainees around the WBA forms can make the process of form filling beneficial (88). However other work suggests that WBA require a significant amount of time to complete and are potentially stressful for surgical trainees (89) and trainers (27). There is also currently very little evidence to support the educational impact of these assessments (90). In summary by exploring feedback interactions in the context of WBA offers the opportunity to consider these interactions within a context which was designed to support feedback encounters between trainers and trainees. WBA could be a huge resource to support feedback and learning by trainees but some anecdotal evidence to date suggests that this role is not currently being fulfilled.

In developing research questions

Feedback has been shown to be important for clinical performance (56). Feedback interactions occur in a complex setting with trainers (70) and trainees (79, 81) bringing their own perceptions to these encounters. These interactions are set within the messy context of the postgraduate workplace which has seen a shift to a competency based model of postgraduate training in the past decade. Research suggests that trainers and trainees often do not recognise that the same encounters constitute feedback (85). WBA were designed to promote opportunities for trainers and trainees to engage in feedback interactions in the workplace. However survey data suggests that WBA in surgery may not currently fulfil this role (91). The question which remains to be answered is,

How do WBA impact on feedback interactions, between surgical trainers and trainees, in the postgraduate workplace?

2. Methodology

In this section, the methodological approach to undertaking the literature review and rationale for undertaking a mixed methods approach are discussed.

Literature Review methodology

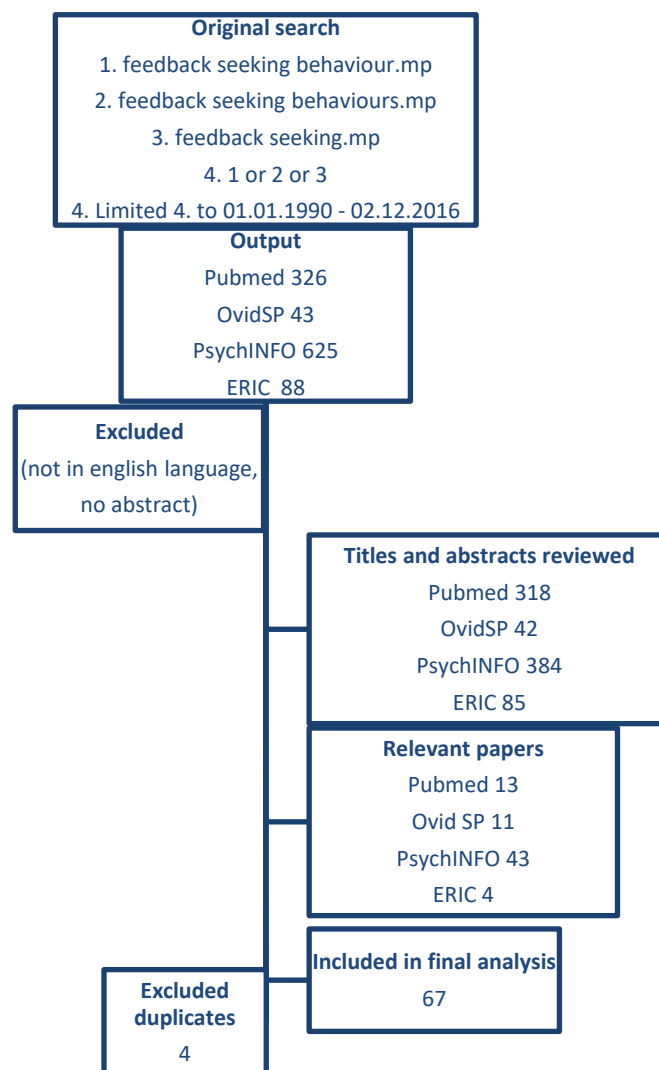
A systematic approach to reviewing the relevant literature in relation to feedback interactions and workplace based assessment has been undertaken. Several large-scale reviews of the literature have been undertaken some published within the last eighteen months. These include van der Ridders review of factors which affect the feedback process and effect (64) and Anseels review of the feedback seeking literature (66). A review of the utility of WBA has been undertaken (90) and a review of user perceptions of WBA (92). These reviews though excellent at highlighting evidence from randomised controlled trial data do not account for the increasing qualitative evidence available in the medical education literature.

Therefore a focused literature review using a standardised approach (93) has been performed. This has focused on searching the literature in relation to feedback seeking behaviour and in a separate search feedback and WBA. The results of these literature reviews are incorporated within the main introductory chapter and within the introductions to subsequent results chapters. Specifically, feedback seeking behaviour relates to chapter 4.

For feedback seeking behaviour

A systematic approach to appraising the literature has been undertaken. The inclusion criteria were papers exploring feedback seeking in medical, veterinary and other workplace settings. This included studies which utilised a quantitative or qualitative methodological approach. Papers published since 1990 were included as feedback seeking was not originally described in the literature until 1986 therefore most relevant studies are reported after 1990. Exclusion criteria were papers not written in English, those with no abstract available, conference proceedings, personal communications and duplicate references. Full text papers were obtained for all relevant papers identified. The references of the relevant papers were also hand searched to identify any additional papers (figure 11).

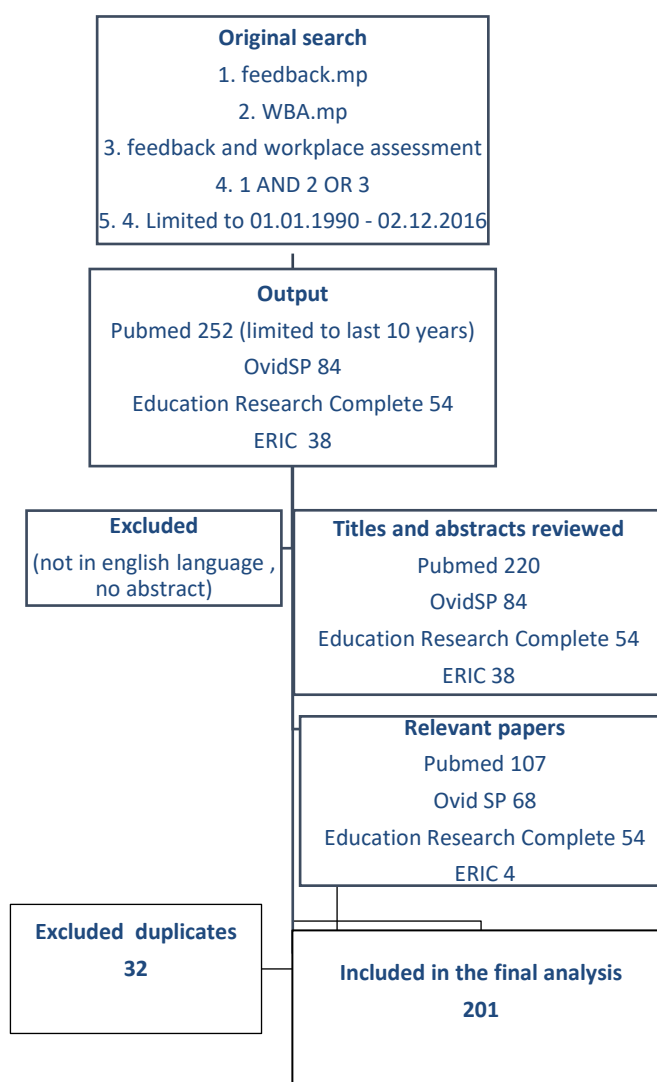
Figure 11. Systematic approach to literature search for feedback seeking behaviour



For feedback and WBA

The inclusion criteria for this literature search included papers relating to feedback and WBA in a medical and veterinary setting. Workplace Based Assessments were defined in section 1 using the GMC statement regarding the role of WBA as an assessment for and of learning (12). This included studies which utilised a quantitative or qualitative methodological approach. A search term for in training evaluations, (ITE), which is used in some of the North American literature was not included as it was often difficult to determine how these ITE were used in a practical setting. In some situations, their use appeared to be analogous to WBA being used to assess performance at discrete time points but in other circumstances they were used as end of rotation assessments. This search was limited to papers published since 1990 as the competency based movement in medical education did not begin to be published widely until around this time. Exclusions were papers which were not written in English, those with no abstract available, conference proceedings, personal communications and duplicate references. Full text papers for all relevant papers identified were obtained. The references of the relevant papers were also hand searched to identify any additional papers (figure 12).

Figure 12. Systematic approach to literature search for feedback and WBA



Mixed Methods approach

Mixed methods research has been defined as

“the type of research in which a researcher or team of researchers combines elements of quantitative and qualitative research approaches (e.g. use of quantitative and qualitative viewpoints, data collection, analysis, inference techniques, for the purpose of breadth and depth of understanding and corroboration. (p123)” (94).

Alternatively as *“research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry”(95) .*

Cresswell and Plano Clark have proposed a definition of core characteristics of mixed methods research. In doing so they sought to combine methods, philosophy and research design.

These core characteristics are as follows, in mixed methods research the researcher

1. Collects and analyses persuasively and rigorously quantitative and qualitative data (based on research questions)
2. Mixes the two forms of data concurrently by combining them, sequentially (one building on the other) or embedding one within the other
3. Give priority to one or both forms of the data
4. Uses these procedures in a single study or phases of a study
5. Frames these procedures within philosophical worldviews and theoretical lenses
6. Combines that procedures into specific research designs that direct the plan for conducting the study. (p5)

Why mixed methods

This work adopted a mixed methods approach for a number of reasons.

This thesis seeks to answer a mixture of What? And How/why? questions therefore a mixed methods approach seems most logical (96). This work is congruent with other medical education research in that it involves the *“exploration of complex initiatives and interactions among multiple players”* (97) therefore it is logical to argue that this study provides the ideal setting for conducting mixed methods research in line with medical education research in general (98).

The focus of this work related to interactions between trainees and trainers therefore it could be considered that a qualitative approach would be most appropriate (99). This approach allowed a detailed exploration of trainees and trainers perceptions about feedback interactions in the workplace. However, such a study alone would not deliver generalizable results and I am aware that the target audience of surgeons hold a very positivist epistemological position. In that they believe in a single scientific truth compared to a qualitative constructivist position which holds that an individuals' reality is constructed from their personal, social and historical context (100). Therefore, by including a quantitative arm of data collection this work will provides a mark of generalizability of the results and may therefore be more engaging to the target audience.

Advantages of this approach

A mixed methods approach is more likely to succeed in answering the research questions asked compared to using a single methodology. A mixed methods approach offers a practical way of tackling the research questions posed.

"individuals ..solve problems using both numbers and words, combine inductive and deductive thinking, and employ skills in observing people as well as recording behaviour"(p13) (101)

This approach offers the advantage that the strengths of utilising both quantitative and qualitative methods can outweigh the potential disadvantages of each method. In collecting quantitative data, the opinions of large numbers of individual trainees and trainers can be sought and this positivist, "unbiased" data can be more easily interpreted by the positivist surgical audience of this work. The weaknesses of solely using a quantitative approach is that this will not explore trainees' and trainers' perceptions in sufficient detail to ascertain meaningful answers to my research questions. This weakness can be overcome by collecting qualitative data. A qualitative phase of data collection will allow the detailed exploration of trainees and trainers perspectives to feedback and learning in the clinical workplace. A purely qualitative approach would provide in depth data but this would lack generalisability and be open to claims of "bias" as the researchers interpret these data. These weaknesses in the overall study can be ameliorated through a quantitative phase of data collection.

Challenges of this approach

In deciding to adopt a mixed methods approach I have needed to develop skills in both in quantitative and qualitative research. I have attempted to address this by engaging in the postgraduate teaching program run by the University of Warwick and also by attending masters levels modules run by Warwick Medical School both in statistical methods and qualitative inquiry. I also engaged in undertaking a small qualitative project alongside an experienced qualitative researcher to develop my understanding and skills in undertaking qualitative research.

I am aware that by undertaking a mixed methods study I have had to factor into the study design time to undertake both quantitative and qualitative arms of the study and the timing of these studies to allow for one data set to be used to inform the second phase of data collection and analysis.

Theoretical Perspectives

In undertaking a mixed methods project it is important to consider the theoretical perspectives, philosophical assumptions, that underlie this approach.

Crotty suggested the following conceptual framework for thinking about how philosophy guides mixed methods research design. This framework includes considering the paradigm worldview, theoretical lens, methodological approach and methods used by the study (102).

Paradigm world views

My undergraduate and postgraduate training in surgery supported a largely post-positivist world view associated with a preponderance towards quantitative research methods and literature. With its incumbent ontological perspective of a single “truth” in science and an epistemological position of impartiality between the researcher and the research being undertaken (103, 104). In developing as a clinician and becoming engaged in reading education research, and the depth of understanding to complex social problems that qualitative data brings, I appreciate that individuals’ perceptions of their “lived reality” differs. Constructivism holds that the reality we perceive is constructed by our social, historical, as well as individual contexts. This ontological perspective that individuals hold different lived realities supports an epistemological, how we gain knowledge, position whereby researchers are close to the participants they study visiting them in their natural settings (105).

The mixed methods literature suggests adopting one of two main approaches. The researcher could engage in using different world views at various stages of this thesis. This approach requires researchers to be explicit in their position and understand that by adopting different world views leads to contradictory ideas which can-not be reconciled and must be honoured in the research process (106). Some researchers suggest this is worthwhile when conducting a sequentially planned study as in this study (107). Alternatively, a pragmatic stance to the research could be adopted. Pragmatism requires the researcher to hold the ontological position that reality can be singular, for example there may be a theory which can explain the phenomenon being studied, or multiple, individuals construct their own meaning based on their lived experiences (95, 96). That *“knowledge is viewed as being both constructed and based on the reality of the world we experience and live in”* (96). Proponents of pragmatism argue that the research question is of primary importance, quantitative and qualitative research methods can be used in the same study. Also that trying to force researchers to choose between post-positivism and constructivism should be abandoned (96, 108, 109).

Though others argue that pragmatism cannot and should not be considered as a third paradigm (110). In adopting a pragmatic stance to this work the researcher can consider attempting to answer the research questions posed as of prime importance when designing this study. This allows the researcher to utilise the strengths of both quantitative and qualitative data in order to attempt to achieve this. This approach allows abductive processes to guide the use of one method of data collection and analysis to guide further data collection and analysis. The disadvantages of this approach is it may be perceived as lacking credibility in undertaking quantitative and qualitative data collection and analysis thoroughly within a strong conceptual framework. However, on balance in adopting a pragmatic stance to this thesis and using every effort to utilise quantitative and qualitative methods rigorously rather than shifting from one conceptual position to another half way through this thesis is justified.

Theoretical lens

This work will include the use of several different theoretical lenses to explore these data. In investigating the quantitative data this work will use a framework of “feedback seeking behaviour” to investigate the relationships between trainees motivations, goals and feedback seeking behaviours (Section 4) (111). As part of the qualitative analyses trainees motivations for seeking feedback will be explored through a self-motives framework

(Section 6) (68) and finally I will use Activity Theory (112) to compare trainees and trainers perceptions around the feedback and learning in the surgical workplace (section 8).

Methodological approach

A fixed methods study will be used as this work is designed from the outset as a mixed methods study.

The explicit reasons for engaging in a mixed methods study are outlined below. By obtaining quantitative and qualitative data this project will be able to triangulate the results from different arms of data collection therefore producing robust findings. This project will also be able to use one data set to develop the research strategy for a second (113). A more comprehensive account of this complex and dynamic field can be developed by mixing methods to provide a more complete understanding of how trainees and trainers engage in feedback interactions using WBA in the surgical workplace. In adopting a mixed methods approach this work would have greater credibility with its target audience than adopting a single method of data analysis alone.

Methods used

As part of designing my mixed methods study I have considered the following points.

1) Level of interaction between quantitative and qualitative data.

The quantitative and qualitative strands of data will engage with each other at an “interactive” level. This interactive relationship between quantitative and qualitative strands of the analysis, described by Greene (114), allows the use of the quantitative results and analysis to guide the qualitative study design in incorporating unanswered findings of the quantitative data into the development of questioning in the qualitative strand.

2) Priority of the Quantitative and qualitative data.

In this study both methods will have an equal priority in addressing the research questions posed.

3) Timing of the quantitative and qualitative phases

A sequential timing approach will be adopted with quantitative data collection and analysis guiding the qualitative data collection and inquiry.

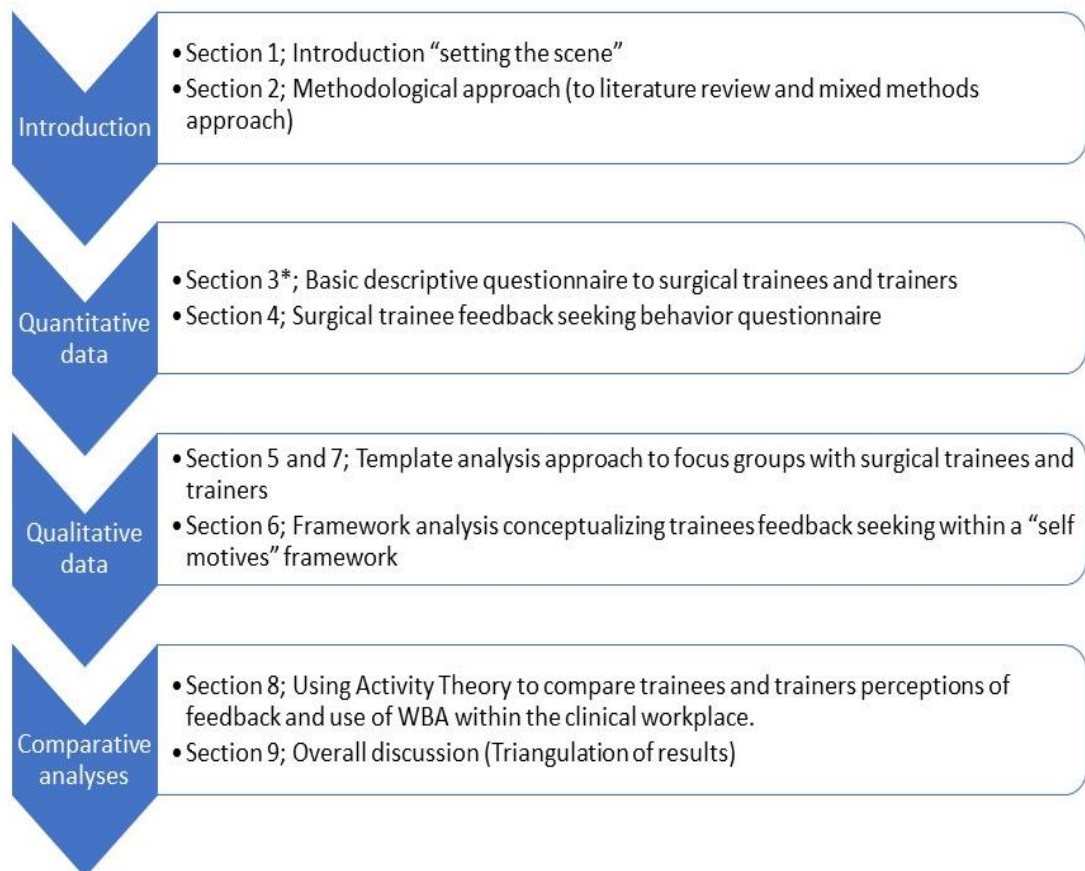
4) Determine where and how to mix quantitative and qualitative strands

The quantitative and qualitative data strands will be connected. This connection of the data takes the form of the quantitative data collection and analysis informing the qualitative data collection through the development focus group guides and qualitative data analysis by guiding the development of a priori themes as part of a template analysis approach.

Study Plan

Based upon the above decisions an explanatory sequential study design for this work will be undertaken (figure 13). The main purpose of this form of study design is to use the quantitative data to guide the qualitative phase of data collection and utilise the strengths of the qualitative strand to explain quantitative findings. This enables me to assess trainees and trainers' basic perceptions in relation to feedback and utilisation of WBA and then use qualitative data to explain the underlying reasons and inter-relationships within these findings.

Figure 13. Study Design for thesis



*Sections 3 to 8 will include relevant literature, methods, results and discussion

Advantages of this approach

This design begins with a quantitative phase, which is easier for a traditionally quantitative researcher like me to begin. It will appeal to and engage its positivist audience more readily and therefore hopefully aid focus group participation. This study design is relatively straight forward to implement with one strand of data being collected at once. It offers a logical sequence to writing up this thesis.

Challenges to this approach

Time will be needed to collect and analyse data sequentially. Decisions about which quantitative results to explore further will need to be made and this cannot be done until the quantitative data has been collected and analysed. Finally, a decision regarding who to sample in the qualitative phase of data collection, whether this is individuals who participated in the initial quantitative data collection or other groups will need to be made and justified.

Collaboration

In order to reach a large study population for the quantitative arm of this study I collaborated with a number of regionally based surgical trainee research led networks (115). These networks run large studies ranging from multicentre audits to randomised controlled trials. Participating collaborative groups included the West Midlands Research Collaborative, London Surgical Research Group, Welsh Barbers, East Midlands Surgical Academic network, South Yorkshire Surgical Research Group and the Scottish Surgical Research Group. This collaboration took the form of individual “project investigators” at each hospital site which participating helping to recruit participants for the quantitative arm of the data collection in all centres and in some centres helping to arrange focus group meetings. In exchange for this involvement as is the case in large scale randomised controlled trials these local PI’s are authors on the first paper, Medline citable, published in relation to this thesis (116).

3. Quantitative; Basic Descriptive Questionnaire to Surgical Trainers and Trainees

Research Question 1. What are surgeons' and surgical trainees' perceptions of WBAs along a continuum from an assessment for learning to an assessment of learning?

Research Question 2. What are surgeons' and surgical trainees' feedback practices around the delivery and value in using WBAs?

OUTCOMES

1. Trainees perceive WBA represent an assessment of learning compared to their trainers
2. Trainers tend to perceive they provide feedback to trainees more often than trainees perceive they receive it.
3. Delayed feedback seeking by trainees affects the effectiveness of feedback (trainer recall, feedback obtained electronically is of a poor quality)

This work has been published in the Annals of the Royal College of Surgeons of England (appendix 3).

Introduction

Workplace Based Assessment (WBA) represent an opportunity for trainees to engage in feedback interactions with their trainers and should represent an assessment *for* learning (12). However they also have a role as an assessment of learning with progression to the next year of training being determined by an annual review of trainees' progress (ARCP) of which WBA form a part (117). There are no nationally agreed minimum numbers of WBA per year in general surgery and that there is regional variation in the numbers of WBA trainees are required to complete to progress to their next year of training.

Feedback has been shown to be an important influence on subsequent clinical performance (56, 57). Therefore, feedback interactions between surgical trainers and trainees represent an opportunity to improve trainee practice for the benefit of their patients. Feedback has been defined as "*specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance*" (58). An investigation of the process by which trainees and

trainers in The Netherlands engage in feedback interactions using WBA identified a series of steps necessary to ensure WBA were used successfully. These included a) organisation of observation and feedback, b) content and delivery of feedback followed by c) incorporation of feedback into the learning process (65). The authors of this work report that trainees did not always engage in all steps and many trainees reported anxiety at undertaking WBA which led them to avoid observation and feedback in some circumstances whereas other trainees overcame their fears and sought observation and feedback.

A recent systematic review of the literature concluded that the educational impact of WBA has yet to be demonstrated (90). At a practice level, a large-scale study of surgical trainees' views of the ISCP website suggested that trainees' continue to perceive WBA poorly (91). Trainers have also reportedly found it difficult to complete the numbers of WBA required of them by their trainees (27). Furthermore a review of the quality of feedback documented on Urology PBA's found that only a quarter of WBA contained specific feedback consisting of suggestions for developments and explanations (118). Finally the recent evaluation of the Intercollegiate Surgical Curriculum Programme (ISCP) states that *"ISCP has been allowed to displace informal training and de-skill trainers in the art of surgical apprenticeship"* (p47) (17). These findings suggest that at a practice level feedback interactions between surgical trainees and trainers in the context of WBA are haphazard and open to misperception.

In a move to broach these issues the UK Foundation Programme (FY1-2) has evolved their use of WBA into Supervised Learning Events which aim to allow trainees to gain immediate feedback about their performance through formative feedback with no summative element (119). Despite this however only a third of foundation doctors reported that SLE's (miniCEX) had a formative role in the requirement for feedback (120). This suggests that trainees and trainers continue to be unclear as to the role of WBA in postgraduate training.

No previous large-scale study has investigated trainers and trainees' perceptions of the role of WBA as an assessment for learning and assessment of learning. The aims of this section were to determine surgeons' and surgical trainees' perceptions of WBA along an assessment for learning to assessment of learning continuum. Secondly to investigate surgeons' and surgical trainees' opinions on the delivery and value of feedback generated from WBA.

Methods

This study surveyed perceptions of General Surgical (adult and paediatric) trainers and trainees working in centres across England, Wales and Scotland who use ISCP to complete WBA. Data was collected between July 2012 and October 2013, pilot data July and August, main study data September 2012 to October 2013.

The questionnaire was devised to answer the questions posed by this study. Data fields included anonymised basic demographic information, information about numbers of WBA completed, where and when. Respondents were asked about their perceptions of whether they provided/received feedback through WBA, how frequently participants provided or received feedback and when and where this happened in relation to completing WBA. Respondents were asked about their perceptions of WBA along an assessment continuum. This was operationalised as a Likert scale where formative assessment supporting learning, assessment for learning, was rated as 1 along a scale to 6 which represented a summative assessment of learning. Likert scales were used in this study as they represent a way of capturing quantitative data about attitudes (121). A six-point scale was used so respondents had to choose a discriminating response after initial pilot data used a five point scale (see Appendix 2a and 2b).

The questionnaire was piloted in two centres (122) and refined prior to use in the main study. This was undertaken to ensure accurate understanding of the questions and to refine the questioning strategy so that the salient issues regarding feedback delivery in the context of WBA were captured.

The Surgical Trainee Research Collaboratives (115) network was utilised to recruit individual unit “project investigators” who approached all general surgical trainees working at their hospital to participate, in person or electronically by e-mail and gained their informed consent. Anonymised paper or electronic questionnaires were completed. Non-responders were sent a reminder 2 to 4 weeks later. Local project investigators provided site response rates. No financial incentives were offered and no penalties for non-participation.

Data was found to be normally distributed. Following descriptive analysis, comparisons between groups (trainees and trainers) were analysed using Independent t test, Chi Squared test was used to compare categorical variables. Data was analysed using SPSS v 21

[IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp].

Results

Pilot data

Two sites within the West Midlands were surveyed in July and August 2012. The response rate was 81% for trainees (13/16) and 71% for trainers (17/24). Over 80% trainers described they had an educational role within their department and 58% stated they had received training in using WBA.

Trainers had mixed perceptions of the role of WBA as an assessment for learning v of learning whereas trainees tended to perceive WBA represented an assessment of what they had learnt (figure 14). Trainers perceived that they provided feedback when undertaking WBA 88% whereas only 55% trainees felt they received feedback (figure 15).

Figure 14. Trainers and trainees perceptions of WBA along an assessment for learning (=1) to assessment of learning continuum (=5).

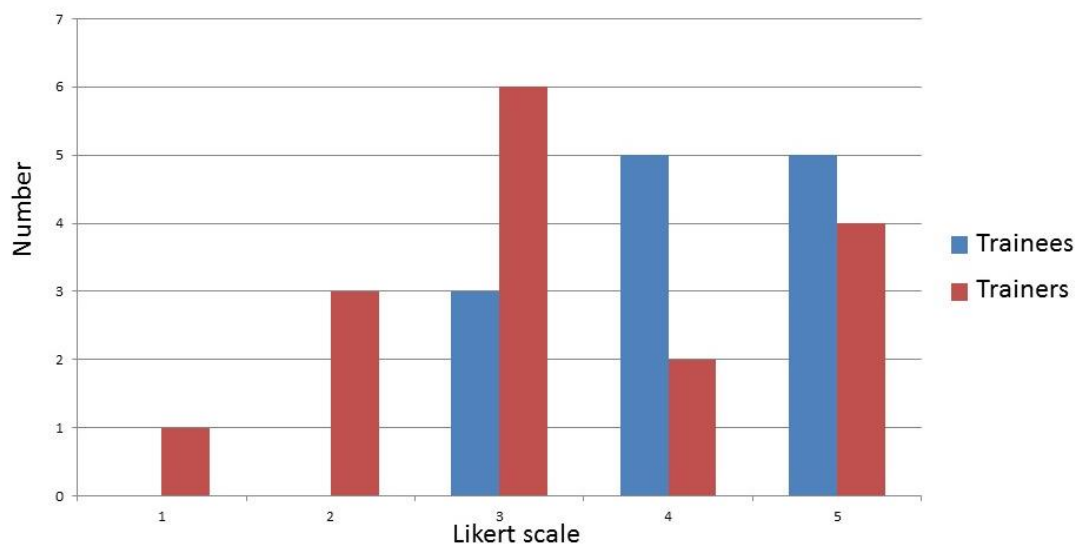
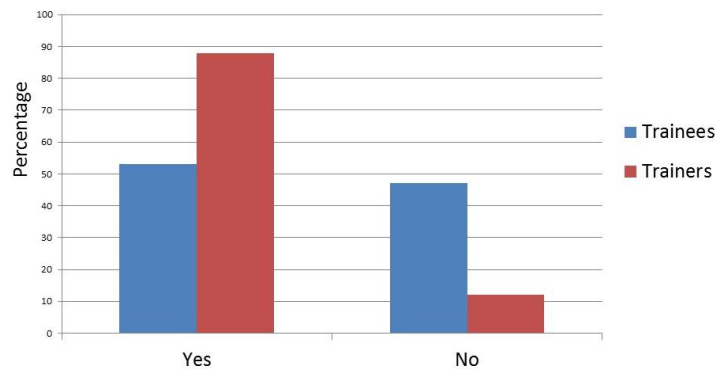


Figure 15. Trainers and trainees' perceptions of feedback delivery and receipt. Yes = feedback given or received, No = feedback not given or not received.



Both groups were asked to complete two free text comments to gather information about their experiences in using WBA. These were aggregated together to identify some of the issues relevant to both groups in relation to using WBA (figure 16 and 17).

Figure 16. Trainer open response comments



Figure 17. Trainee open response comments



This pilot data suggested that surgical trainees and trainers have differing perceptions of whether WBAs represent opportunity to learn. Trainers felt they provided feedback to trainees but only half trainees thought they received it. Trainees had mixed opinions on WBAs as a tool for learning.

As a result of this pilot data the scale for assessment of learning v for learning was changed to a six-point scale in order to make respondents choose between the two purposes of WBA.

Main study

The overall response rate for this study was 76% for trainees (178/235 from 23 sites) and 62% for trainers (147/239 from 20 sites) across England, Wales and Scotland. Sites included Queens Hospital Burton upon Trent, University Hospital Coventry and Warwickshire, University Hospital Birmingham, Worcestershire Royal Hospital, Heartlands and Good Hope Hospitals Birmingham, Royal Shrewsbury Hospital, Queens Medical Centre and City Hospitals Nottingham, The Mayday Hospital Croydon, University Hospital Wales Cardiff, Morriston Hospital Swansea, Sheffield Acute Hospitals, Sheffield Childrens Hospital, Doncaster Hospital, Barnsley Hospital, East of Scotland Registrar Rotation, Glasgow Infirmary, Raigmore Hospital Inverness and Monklands NHS trust (Paisley and Inverclyde).

Main study; Participant Demographics

Trainee respondents comprised 38% core trainees (CT1 – 2) with the remainder being speciality registrars (ST3-8) in General Surgery. Nearly a third of trainer respondents had been in post less than five years and almost half had been in post over 10 years (Table 1). Trainees (Table 2) and over 50% trainers completed more than 40 WPBA per year. In the previous year 73% trainers completed more than 10 Case Based Discussions (CBDs), 61.8% completed more than 10 mini-Clinical Evaluation Exercises (mini-CEXs) and over 75% completed more than 10 Procedure Based Assessments (PBAs).

Table 1. Demographics of participating general surgical trainees and trainers.

Trainees		Trainers	
65% M: 35% F		89% M: 11% F	
Grade	Number (%)	Length of time in post	Number (%)
CT1-2	68 (38)	<5 years	42 (29)
ST3 - 5	70 (39)	5 – 10 years	34 (24)
ST6+	30 (17)	>10 years	69 (47)
missing	10 (5)	missing	2

Table 2. Numbers of WBA completed by trainees in the past year

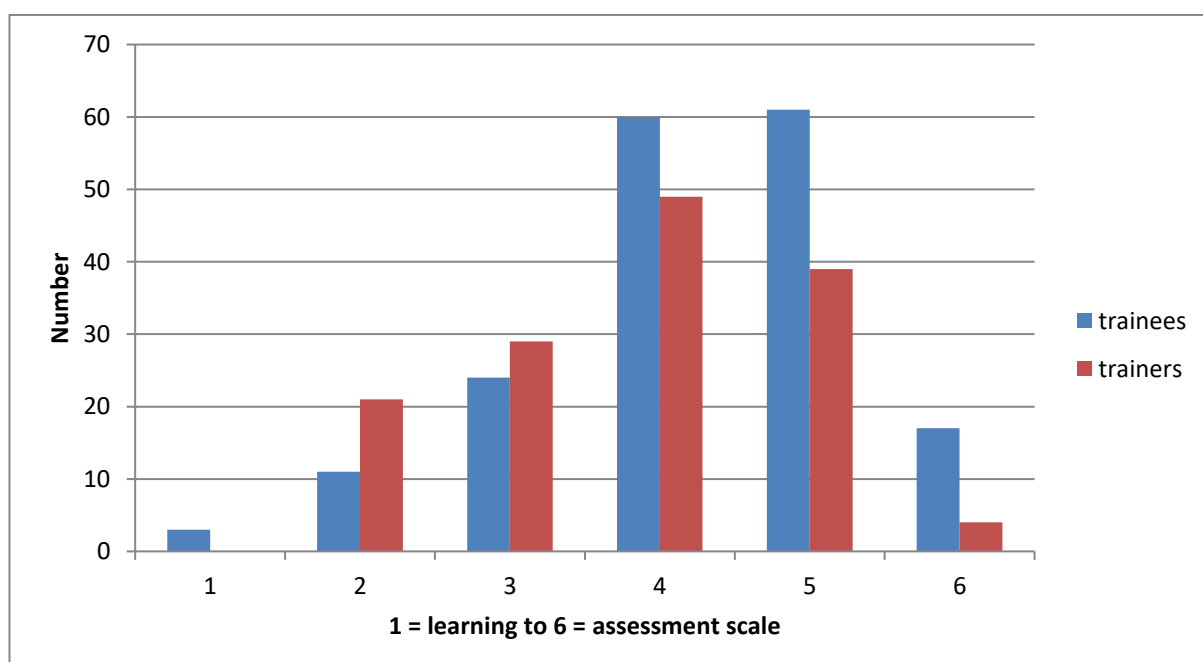
	CBD (mean)	miniCEX (mean)	DOPS (mean)	PBA (mean)	Total Number
CT1 - 2	14.00	12.97	16.34	6.04	49.4
ST3 - 5	11.88	10.61	5.12	19.90	47.5
ST6+	12.20	8.85	2.00	24.67	47.7

Trainer and trainee perceptions about WBA

Perceptions of WBA along a learning to assessment scale

The range of responses given for how WBA are perceived by trainees' and trainers' are shown below (figure 18). All respondents perceived WBA represented an assessment of learning. Though trainers' perceived that WBA represented more of an assessment for learning in contrast to trainees' (trainers' mean response 3.82 versus 4.18 trainees' (independent t test = $t(318) = -2.798, p=0.005$).

Figure 18. Figure to show trainer and trainee perceptions of WBA along an assessment for learning (=1) to assessment of learning (=6) scale



Perceptions of Feedback generated through WBA

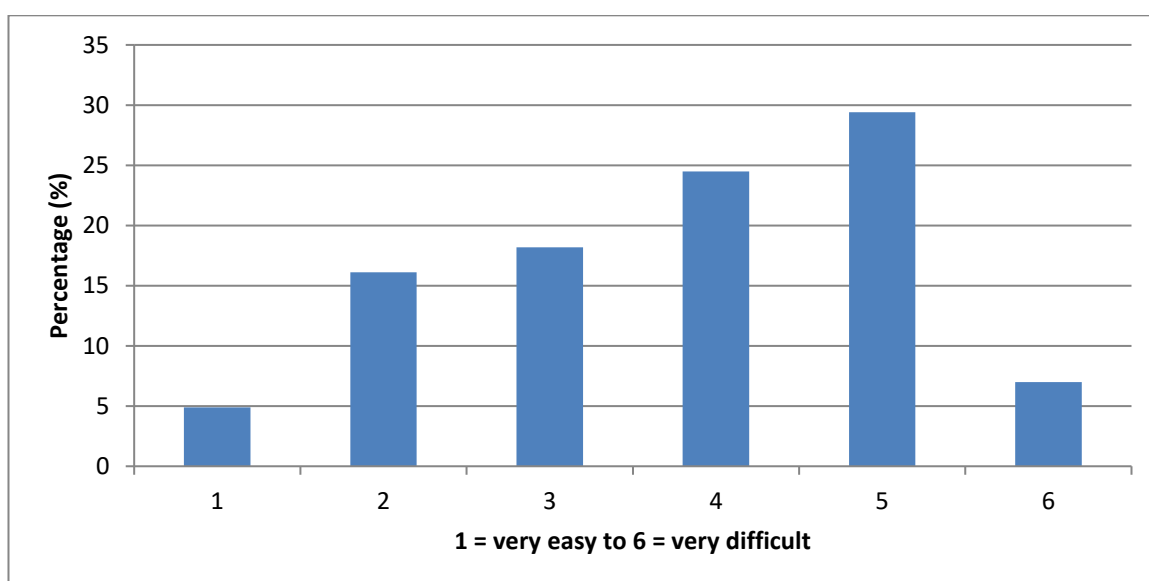
In this study 90.3% trainers' felt they provided feedback to trainees when they completed WBA where-as only 72.8% trainees' felt they received feedback, Pearson Chi Squared 15.391 (df=1) $p=0.000$. This finding suggests that there are significantly different perceptions of the same WBA encounters by trainers and trainees. Despite perceiving they provide feedback to trainees through WBA, 41% trainers' felt that WBA may not provide an opportunity to demonstrate progression in acquisition of clinical competence.

60% of trainers had received formal training in using WBA. 87% of trainers had undertaken a "Training the Trainers" course and 26.5% had completed a "Training and Assessment in Practice" course. Only 12% of trainers reported that they had ever been observed providing feedback to trainees however 70% (93/147) of trainers stated they would value this opportunity.

Trainers' perceptions of providing negative feedback to trainees

36.4 % trainers reported difficulty (difficult or very difficult) in providing negative feedback to their trainees. The figure below (figure 19) shows a trend towards trainers' perceiving difficulty in providing negative feedback to their trainees.

Figure 19. Trainers' perceptions of difficulty in providing negative feedback to trainees' in the context of WBA.



Trainers' and trainees' perceptions of feedback practices in using WBA

Time spent engaging in feedback in relation to WBA

Trainees and trainers also differed in their reporting of the length of time spent engaging in feedback (figures 20a and 20b). Almost a third of trainers' felt they spent longer than 10 minutes providing feedback whilst nearly 15 per cent of trainees' felt no time was spent receiving feedback. Trainees' perceptions of not receiving feedback were different for each type of WBA 12.5% for CBD, 17.8% miniCEX, 5.5% PBA and 23.6% sDOPS.

Figure 20a. Time trainers perceive they spend engaging in feedback interactions with trainees' in the context of WBA

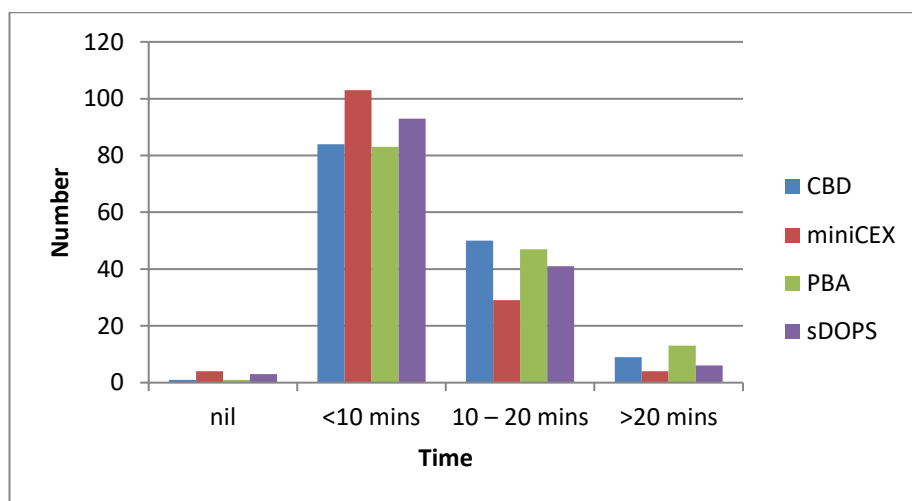
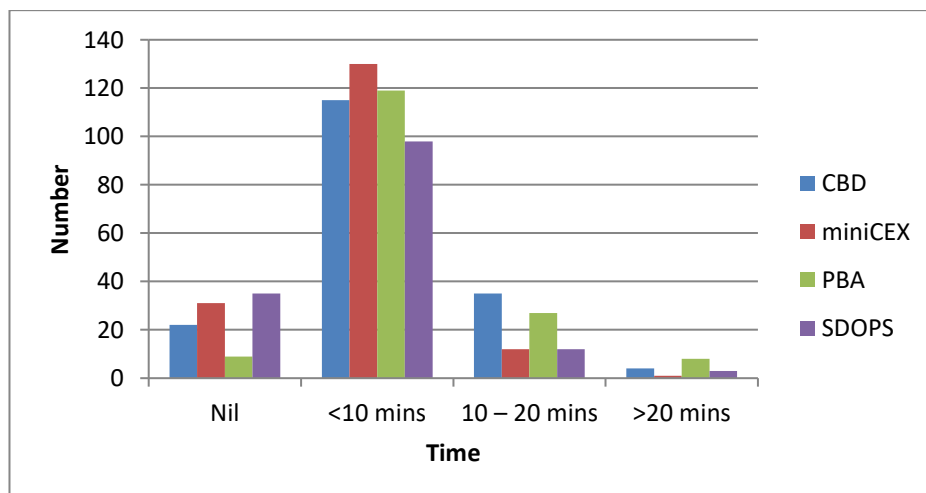


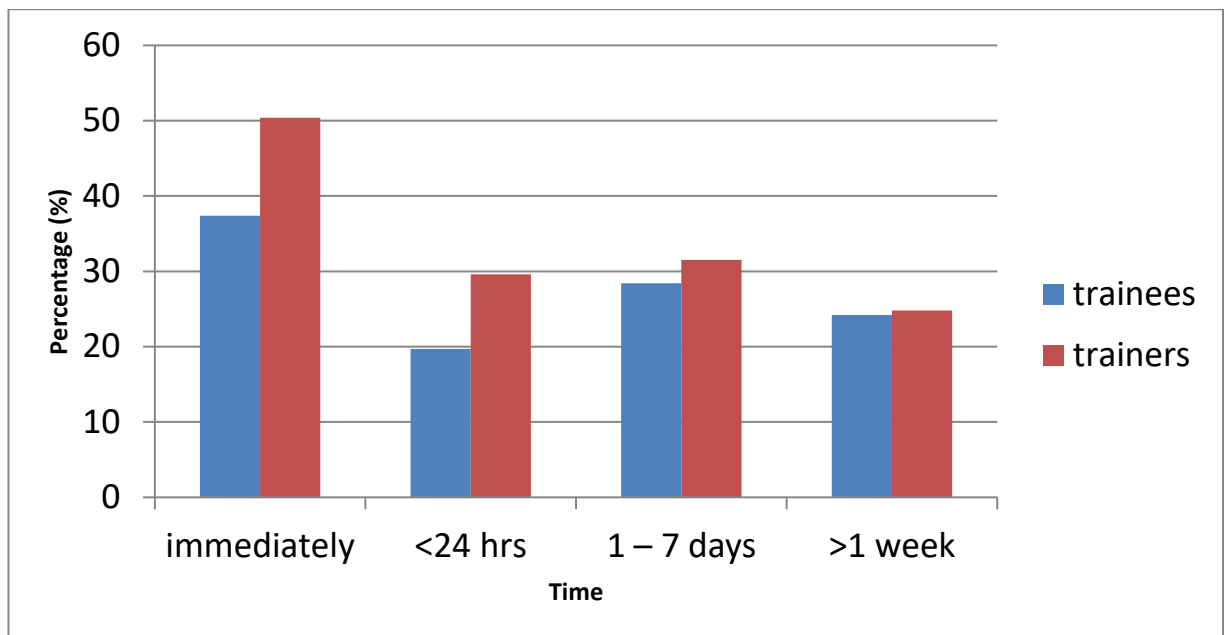
Figure 20b. Time trainees perceive they spend engaging in feedback interactions with trainers' in the context of WBA



Length of time after observations of practice that WBA are completed

There was considerable variation in the time between observation of clinical practice and completion of WBA (figure 21). Approximately half of trainers and trainees reported that they completed WBA forms within 24 hours of undertaking an observation of clinical practice. However over 20 % respondents in both groups completed WBA more than a week after the clinical episode was observed.

Figure 21. Length of time after observation of practice WBA were completed



Trainees who completed WBA immediately after the observation of practice tended to be those who perceived WBA represented an opportunity to learn (Pearson correlation coefficient $r=0.181$, $p=0.017$). However, there was no correlation between delayed completion of WPBA and trainees' perceptions of WBA as an assessment of their performance. It is likely therefore that timing of completion of WBA and feedback is not just a function of trainees' perceptions of WPBA as a chance to learn but also reflects many other factors which could include the setting in which feedback took place and the perceptions of their trainers.

Setting of feedback interactions around WBA

Feedback interactions took place in a number of settings (table 3). The majority, 75 % of trainees interacted with their trainer directly in person. Trainees who engaged in face to

face feedback with their trainer were more likely to believe that they had received feedback compared to those who had not (Pearson Chi Squared 8.734 df 1 p=0.004).

Table 3. To show the settings in which feedback interactions around WBA took place. Individuals were able to state yes or no to each of the categories therefore totals are across rows.

	Yes (%)	No (%)
Face to face	122 (75.3)	40 (24.7)
Electronically	85 (52.5)	77 (47.5)
In public	26 (16)	136 (84)

Discussion

This is the first national UK study to investigate the concurrent views about the role of WBA as an assessment for learning held by surgical trainers and trainees.

Differences in perceptions of purpose of WBA

Surgical trainees tend to perceive that WBA represent a test of their performance, an assessment of their learning, compared to their trainers. This may be linked to trainers' and trainees' perception of whether feedback has actually been provided and received in the context of WBA. In this study trainers' believed that they provided feedback to trainees in the context of WBA more consistently than trainees' perceived they received feedback. This notion of differences in perceptions of the delivery and receipt of feedback has previously been reported in the literature in a small single centre study in North America (85). This is concerning as these data suggest that some trainees' perceive that the formative role of WBA is not currently being fulfilled.

Previous research suggests that many factors can impact on feedback interactions between trainees and their trainers. These include trainers' perceptions of the trainee, the relationship they have with the trainee (73, 123) as well as how they rate the trainees' performance (72, 124, 125). Trainees' experience and confidence in a task, their judgement of the credibility of the feedback provider (81) and their motivation for seeking feedback (79, 80) all affect when trainees' choose to engage in feedback interactions with a

trainer. It is likely that WBA provide an additional complexity to these feedback interactions.

Effects of Perceptions on feedback practices around WBA

The time available to complete these assessments has also previously been cited as a factor in whether WBA is completed (89) and this may reflect why the majority of both trainees and trainers reportedly spent less than 10 minutes engaging in feedback interactions around WBA. Alarming a proportion of trainees' felt that they spent no time at all receiving feedback in the context of WBA. This may relate to trainees' perceptions of WBA as an assessment of their learning.

The setting in which feedback takes place is also important with face to face interactions most likely to be perceived by trainees' as representing feedback compared to other modalities. Interestingly over half of trainees felt they received feedback from their trainers' electronically. The value of such electronic interactions is questionable with previous work reporting that electronic feedback seldom contains the information required for change in practice (118). This may help explain why trainees' who receive electronic feedback or comments on their performance do not consider WBA represent an opportunity for feedback.

Approximately half of WBA's are completed within 24 hours of the observation of practice taking place but in many circumstances, there was a delay of over a week in trainees and trainers completing WBA. Those who perceived that WBA represent a chance for them to learn tended to complete WBA soon after the observation of practice suggesting that those trainees who are less engaged with completing WBA or apprehensive about seeking feedback delay seeking feedback through this system. This delay in feedback seeking is likely to impact on the quality of feedback that is received by trainees as it is difficult to imagine how trainers recall operative detail and focussed feedback over a week after the event. Secondly delayed feedback is likely to lead to the provision of generic feedback to trainees which is reported to be of less use than specific feedback for change in practice (65). The literature reports that for feedback to be effective in a clinical setting it must be task-specific (90).

It has been suggested that trainers may be complicit with trainees seeking delayed feedback in the context of WBA, as they are concerned about providing negative feedback

to their trainee (70). It has been suggested that this reflects trainers' tensions in providing positive feedback to support trainees and providing constructive feedback for change (negative feedback) which could have a detrimental effect on their working relationship with their trainee (70).

Do trainees' perceive the purpose of WBA is to primarily to benefit them as a trainee by providing them with feedback (as an assessment for learning) or is it primarily to be used as evidence to ensure they have reached an appropriate standard (an assessment of learning)? This dual purpose creates uncertainty in meaning and we suggest individuals infer their own meaning. This is reflected in their practices in using WBA. The literature suggests that WBA lack the authenticity of a practice based system and that the assessment of individuals through WBA does not capture the complexities of the communities in which surgical trainees practice (126).

Finally, it should not be assumed that when senior trainees become consultants WBA will be used for their "proper purpose" as senior trainees' previous experiences in using WBA as a trainee may lead to perpetuation of the same cycle of delayed positive feedback seeking. Current senior trainees, unlike their current trainers, have first-hand experiences of the summative use of WBA by ARCP panels.

If WBA is to have a role in promoting feedback and change in trainee practice then all parties (trainees, trainers and ARCP panels) who engage in using this competency based model should actively and explicitly promote its formative component. This study suggests a large amount of local faculty development work is still required for the implementation of WBA through ISCP. Particularly in light of the move to formalise trainers qualifications (127). Trainees may also benefit from training in how best to use ISCP to seek and use feedback in a clinical setting.

Study limitations. This study was undertaken in a volunteer sample of hospitals throughout England, Wales and Scotland but it maybe that some regional differences may have affected the data collected. This study relied on individuals to report their behaviours rather than observing them directly and as such this type of study is open to recall bias, either intentional or unintentional. At three sites trainee principle investigators felt unable to ask trainers to participate in this study and hence their views are not reported in the analysis.

Further work could explore trainees' feedback seeking in the context of WBA in more detail and also qualitative work exploring how trainees and trainers engage in feedback interactions around WBA would shed more light on this important area.

Conclusion

Trainers' and trainees' perceive that the role of WBA is predominantly as an assessment of learning. Interestingly, trainers' think that WBA offer a greater learning opportunity than trainees' perceive. This corresponds to a mismatch in perceptions of delivery and receipt of feedback. Delayed feedback is sought in a proportion of WBA and this may reduce the value of any feedback obtained through these interactions. If WBA is to have a formative role in providing feedback to trainees this role and feedback interactions themselves must be explicit to all stakeholders who are involved in using and interpreting WBA. Trainees and trainers should also be aware of the effects that delays in seeking feedback may have on the quality of the feedback they receive. There remains a need for further training of both faculty and trainees to ensure that WBA can be used for their designed purpose as an assessment for learning in the surgical workplace.

4. Quantitative; Surgical Trainees Feedback Seeking Behaviour in the Context of WBA

Research Question 1: What are surgical trainees' feedback seeking behaviours (feedback inquiry and monitoring) in the context of WBA?

Research Question 2: Do these feedback-seeking behaviours relate to engagement in the use of WBA?

Research Question 3: In the context of WBA can we distinguish mediating and predictor variables which relate to surgical trainees' feedback seeking behaviour?

OUTCOMES

- 1) Trainees who value feedback seek feedback by engaging in feedback inquiry and monitoring
- 2) Valuing feedback is a function of learning goal orientation and effective supervision
- 3) Performance goal orientation is linked to perceiving high personal costs to feedback
- 4) Supervision is important for feedback seeking outside of WBA

This work has been published in Academic Medicine June 2017 (Appendix 4)

Introduction

Feedback encounters are complex with many factors affecting how trainers and trainees engage in the delivery (20, 70, 72, 73, 128) and receipt of feedback (54, 81).

Trainees are not passive recipients of feedback and choose to actively engage or disengage in seeking and acting on feedback (65). Contemporary organisational psychology suggests there are several aspects to how trainees seek feedback; the method used to obtain feedback via inquiring directly or inferring feedback (feedback inquiry and monitoring), frequency, timing, the characteristics of the trainer and trainees' perception of the feedback topic (positive or negative) (68).

This active feedback seeking behaviour is based on social cognitive theories of learning. Self-theories result from different ways of thinking about individuals personal attributes (129). These theories suggest individual's ideas about what competence is and what it

means for 'self', can influence the different kinds of behaviour that emerge when individuals are confronted with challenge (129). Self-theories describe individuals as either entity theorists, viewing a trait as fixed, or incremental theorists, believe a trait can be developed, and these are domain specific (130). Entity theorists set personal performance goals in keeping with their concerns about performing well. These individuals *"seek to demonstrate and validate the adequacy of one's competence by seeking favourable judgements and avoiding negative judgements about one's competence"* (129). Performance goal orientation contains prove and avoid domains. Prove domain is defined as *"the desire to prove one's competence and gain favourable judgements about it"* and avoid as *"the desire to avoid the disproving of one's competence and to avoid negative judgements about it"* (131). Performance goal orientation has been linked to feedback seeking behaviour, feedback inquiry and monitoring, through the mediating factors of perceived personal benefits and costs to feedback (111).

In contrast incremental theorists set learning goals in order to improve their performance in specific tasks by spending time and effort in finding out what strategies work and overcoming inevitable setbacks (132, 133). Individuals who have a learning goal orientation *"seek to develop competence by acquiring new skills and mastering new situations"* (129) has been linked to feedback seeking through engaging in feedback inquiry and monitoring (111). Effective supervision could facilitate trainees in pursuing a learning-goal orientation towards improving their skills through seeking feedback (79).

Few studies have investigated trainee feedback-seeking behaviour in a clinical setting. Research involving Obstetrics and Gynaecology trainees in the Netherlands suggests that residents do actively seek feedback related to their perceptions of the personal benefits and costs to feedback (79). Qualitative work with veterinary students highlights personal, interpersonal and influencing factors (ego, image and perceived feedback profit) which affect trainee feedback-seeking (80).

This work explores trainees feedback seeking behaviour in the context of WBA. The literature reflects the dichotomy of WBA having a role as an assessment for learning and of what has been learnt, with mixed reports on its educational impact (90) and use in delivering feedback in clinical settings (91, 118, 134). WBA provide a checklist to guide feedback but in the clinical workplace this feedback is not standardised. In the previous section (Section 3) of this work we reported that 70% of trainers, in 2012-13, received training in providing feedback to trainees (116), this is now compulsory (127).

Investigating the ways in which trainees engage in using WBA to seek feedback may shed light on some of the complexities of feedback interactions in the clinical workplace. This led to the formulation of the following research questions:

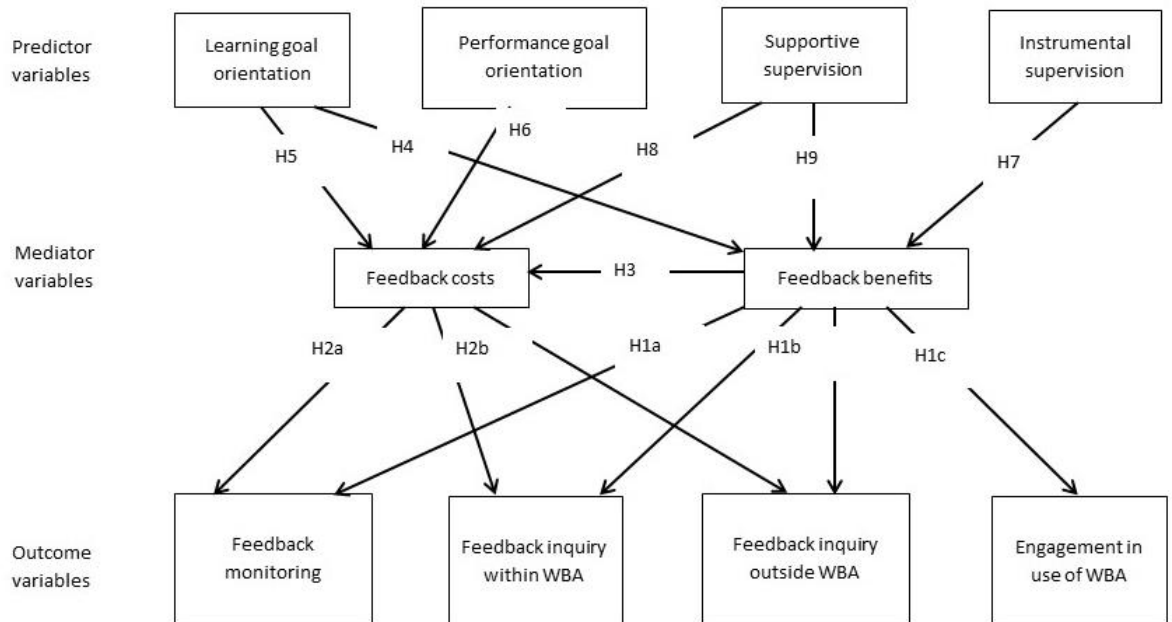
1: What are surgical trainees' feedback seeking behaviours (feedback inquiry and monitoring) in the context of WBA?

2: Do these feedback-seeking behaviours relate to engagement in the use of WBA?

3: In the context of WBA can we distinguish mediating and predictor variables which relate to surgical trainees' feedback seeking behaviour?

To answer the research questions, the existing literature was used to guide the formulation of a hypothetical model of surgical trainee feedback-seeking behaviour. Feedback-seeking behaviour was hypothetically linked to the predictive variables of goal orientation and supervisory style through the mediating variables of trainees' perceptions of the personal benefits and costs to feedback. The 12 hypotheses are detailed below and in Figure 22.

Figure 22. A Model of trainee feedback-seeking in the context of WBA.



Hypothesis 1a; Feedback benefit is positively associated with feedback monitoring in the context of WBA

Hypothesis 1b; Feedback benefit is positively associated with feedback inquiry (within and outside) of WBA

Hypothesis 1c; Feedback benefit is positively associated with engagement in the use of WBA

Hypothesis 2a; Feedback costs are negatively associated with feedback monitoring in the context of WBA

Hypothesis 2b; Feedback costs are negatively associated with feedback inquiry (within and outside) of WBA

Hypothesis 3; Feedback costs and benefits are negatively associated

Hypothesis 4; Learning goal orientation is positively associated with feedback benefit

Hypothesis 5; Learning goal orientation is negatively associated with feedback costs

Hypothesis 6; Performance goal orientation is positively associated with feedback costs

Hypothesis 7; Instrumental supervision is positively associated with feedback benefit

Hypothesis 8; Supportive supervision is negatively associated with feedback costs

Hypothesis 9; Supportive supervision is positively associated with feedback benefit

Methods

This section encompasses analysis of quantitative data collected from different sections of the same questionnaire as described in section 3. Therefore, the methods of data collection and participant details are identical. The questionnaire (Appendix 2a) investigated the constructs described below. Data was collected between September 2012 and October 2013 in collaboration with the Surgical Trainee Research Collaboratives (115) network.

Model generated from existing literature

We modified an existing model of trainee feedback-seeking behaviour (79) first developed by organisational psychologists (111, 135) to generate original hypothetical relationships in the context of WBA. This model (Figure 20) suggests that the ways trainees seek feedback, via inquiry and monitoring, and use WBA is affected by their perceptions of the benefit and costs to feedback. This in turn is impacted upon by predictor variables including trainees “goal orientation” and perceptions of their supervisor. The model uses 8 constructs tested with validated instruments from organisational psychology and business (111, 135, 136), higher education (67) and military (137) environments (Table 4) amended to reflect the context of WBA for this study. The instruments are relevant to postgraduate surgical settings in terms of hierarchical nature, provision of continuing education and performance feedback. All instruments, with the exception of engagement in use of WBA, have been previously used in medical education in the context of night shift working (79). As this study concerned WBA, the text of questionnaire items were amended accordingly. One instrument, feedback benefit, previously reported a relatively low reliability index (79) so we amended these questionnaire items, by simplifying the text and placing statements within the context of WBA. The essence of the original items was retained (135).

Table 4. To show the constructs used within the model, their definitions and Likert scales.

	Construct	Definition	Likert scale
Predictor variables	Learning goal orientation	A desire to develop the self by acquiring new skills, mastering new situations and improving one's competence (67).	(1=strongly disagree to 6=strongly agree)
	Performance goal orientation "prove"	The desire to prove one's competence and gain favourable judgements about it (67).	(1=strongly disagree to 6=strongly agree)
	Performance goal orientation "avoid"	The desire to avoid the disproving of one's competence and to avoid negative judgements about it (67).	(1=strongly disagree to 6=strongly agree)
	Supportive supervision	Supervisor is friendly and approachable (79).	(1=strongly disagree to 7=strongly agree)
	Instrumental supervision	Supervisor is organising and structuring trainees' work (79).	(1=strongly disagree to 7=strongly agree)
Mediating variables	Feedback benefit	Feedback has personal informational value in terms of meeting trainees goals, maintaining a positive self-view and modifying their behaviour (79). It allows trainees to maintain a positive view of themselves (138).	(1=strongly disagree to 6=strongly agree)
	Feedback costs	Feedback which doesn't fit with a trainee's self-image (ego costs) or makes them look incompetent (self-preservation costs) (135, 137).	(1=strongly disagree to 6=strongly agree)
Outcome variables	Feedback monitoring	Trainees observe situational cues, observe other trainees and how trainers respond to their behaviour to generate feedback (135).	(1=very infrequently to 6=very frequently)
	Feedback inquiry	Trainees actively ask for feedback (135).	(1=very infrequently to 6=very frequently)
	Engagement in use WBA	Trainees' engagement in seeking structured feedback using WBA	(min score = 4 to max score =19)

RQ1 Outcome variables; Research in organisational psychology (111, 135) and medical education (79) suggests that learners seek feedback via feedback monitoring, observing situational cues, observing others and how trainers respond to their behaviour to generate feedback (135) and feedback inquiry, actively asking for feedback (135).

RQ2 Outcome variables; As we sought to investigate whether trainees' feedback-seeking is linked to engagement in using WBA. The "engagement in use of WBA" construct was developed as there is no existing instrument in this field.

To develop this instrument the existing literature regarding trainee feedback-seeking behaviour was reviewed (68). Within the questionnaire, data relating to potential instrument items was collected and Confirmatory Factor Analysis, using maximum likelihood, was performed to identify appropriate items: time taken to complete Case Based Discussions and Procedure Based Assessments, the frequency WBA were completed immediately after the task was observed and perceptions of the degree to which trainees perceived WBA represented an opportunity to learn (see results section for more details).

RQ3 Mediating variables; Trainees who perceive feedback "benefit" engage in seeking feedback through feedback monitoring (Hypothesis 1a) and feedback inquiry (H1b) (135). Furthermore, trainees who perceive benefit to feedback engage in using WBA (H1c).

Trainees who perceive high feedback "costs" engage in feedback monitoring in the context of night shift work (79) and skills training (H2a)(137). As the evidence relating to personal costs of feedback and directly inquiring for feedback is equivocal (79, 111, 137) we hypothesise that trainees who perceive high feedback costs do not inquire for feedback (H2b). Trainees who perceive benefits to feedback do not see high costs to feedback (H3).

RQ3 Predictor variables; Dweck and Leggett (129) suggest that whether individuals believe their intelligence is fixed or malleable impacts on what they want to achieve when challenged intellectually (their goal orientation). Individuals have a learning or performance goal orientation and this can affect how they respond to challenging intellectual situations.

We hypothesised that trainees who have a learning goal orientation (131) perceive benefits to feedback (H4) (67, 79, 111) and are unlikely to perceive that feedback carries high personal costs (H5) (67, 79, 111). Trainees with a performance goal orientation (131) perceive high personal costs to feedback (H6) (67, 79).

Supervision has an important role to play in feedback interactions. Stogdill's Leadership Inventory (139) suggests leader behaviour has two dimensions: consideration, supportive leadership, and initiation of structure, instrumental leadership.

Trainees perceiving supervisors as supportive perceive greater benefits to feedback (H9) (79) and fewer personal costs (H8) (79, 111). Trainers who display instrumental supervision (79) leads trainees to value feedback generated through such interactions (111). Supervisors who structure a trainees' work engage in structured feedback experiences using WBA (H7).

Data Analysis

Initial data analysis was performed using SPSS v 21. A mean score was derived from each questionnaire instrument and this was used in subsequent statistical modelling. Further data analysis was conducted using structural equation modelling (SEM) in AMOS 19. This statistical technique allowed the pre-determined model to be considered as a whole entity and not fragmented into individual components. SEM uses aspects of correlation, regression and analysis of variance (ANOVA) (140).

There was a small amount of missing data (1.6%). In order to test the statistical model the missing data values were imputed via AMOS using a process called full information maximum likelihood (141). This method of dealing with missing data involves making maximum likelihood estimates of the missing data whilst still using all available data imputation free (142).

Results

Questionnaire instruments

The data had near normal distribution, with no statistically significant difference between mean instrument scores by training grade (Table 5 for Cronbachs alpha, table 7 for Descriptive statistics). Trainees sought feedback by inquiring using WBA (mean 3.8, SD 1.15) and outside WBA (mean 4.1, SD 1.12). Trainees also engaged in feedback monitoring (where they inferred feedback) with a mean score of 3.95 (SD 0.82) which can be considered to be outside the context of WBA.

Descriptive statistics suggest that trainees who directly inquire for feedback using WBA also engage in using WBA therefore these two constructs may be describing the same entity.

Confirmatory factor analysis confirmed that all questionnaire items loaded onto their respective constructs to a statistically significant level except GO4 for learning goal orientation and C2R for costs of feedback. The questionnaire item for learning goal orientation GO4 is as follows “For me, development of my ability is important enough to take risks”. In recent years the medical profession has become increasingly publicly accountable and trainees maybe reluctant to admit to or willing to take risks in acting outside their clinical competence (143) therefore this item was removed from subsequent analysis. C2R was left within the feedback costs instrument. It is likely it performed poorly as the first negative scoring item within the questionnaire (see Appendix 2a).

Engagement in WBA instrument development (CFA)

Confirmatory factor analysis (Table 6) shows that the actual numbers of WBA trainees completed was negatively associated with the other potential items for use of WBA. This may be due to the situation in the UK where trainees complete a minimum number of WBA per year and this number is regionally set. It is plausible that the other items reflect trainees’ engagement in using WBA rather than “use” in terms of numbers. With the “numbers” of WBA undertaken removed from the CFA all items load onto a construct of engagement in use of WBA to a statistically significant level. This therefore forms the instrument for engagement in use of WBA throughout the remainder of the analysis. Reliability indices, cronbachs alpha, are based on the final instrument after item deleted.

Table 5. Comparison of Cronbachs alpha for this project compared to previous work

	This project	Previous research (79)	Original reliability data
1.Learning goal (Goal orientation items 1- 5)	0.791	0.70	>0.8 (131)
2.Performance goal overall (Goal orientation items 6 – 13)	0.832	0.78	
3.Supportive leadership (supervisors are; items 1 – 9)	0.903	0.87	Not available (139)
4.Instrumental leadership (supervisors are; second set items 1 – 8)	0.893	0.76	
5.Feedback benefit (perceived value of feedback items 1 - 6)	0.769	0.67	Items 1 – 3 = 0.72 (135) Items 4 – 6 = NA (138)
6.Feedback costs (feedback costs items 1 - 6)	0.723	0.81	0.8 (135)
7.Feedback monitoring (feedback monitoring and inquiry items1 – 6)	0.760	0.87	0.74 (137)
8.Feedback inquiry via WBA (feedback monitoring and inquiry items 7 – 9)	0.869	0.89	0.81 (137) 0.83 (136)
9.Feedback inquiry outside WBA (feedback monitoring and inquiry items 10 - 12)	0.877		
10. Engagement in USE of WBA	0.462	NA	NA

Table 6. Confirmatory factor analysis (regression weights) for Engagement in use of WBA

(***= p <0.001)

Construct	items	Estimate	Standard error (S.E)	Critical ratio (C.R)	P value
Engagement in use of WBA	Time - CBD	1.000			
	Time - PBA	0.808	0.197	4.091	***
	Immediately	0.515	0.262	1.967	0.049
	Opportunity to learn	1.036	0.282	3.670	***
	Numbers of WBA	-0.448	0.238	-1.883	0.060

Table 7. Descriptive data, * indicates a relationship is statistically significant to $p < 0.05$, *** indicates a relationship is significant to $p < 0.001$

	Mean (SD)	Cronbachs alpha	1	2	3	4	5	6	7	8	9
1.Learning goal	4.984 (0.656)	0.791									
2.Performance goal overall	3.072 (0.804)	0.832	-0.062								
3.Supportive leadership	5.15 (0.870)	0.903	0.213***	-0.203***							
4.Instrumental leadership	5.061 (0.914)	0.893	0.154*	-0.114	0.695***						
5.Feedback value/benefit	4.536 (0.672)	0.769	0.089	0.024	0.222*	0.306***					
6.Feedback costs	2.590 (0.750)	0.723	-0.184*	0.424***	-0.413***	-0.342***	-0.376***				
7.Feedback monitoring	3.953 (0.819)	0.760	0.042	0.200*	0.041	0.182*	0.179*	0.061			
8.Feedback inquiry via WBA	3.818 (1.145)	0.869	-0.005	0.140	0.019	0.190*	0.463***	-0.166*	0.297***		
9.Feedback inquiry outside WBA	4.109 (1.121)	0.877	0.148	-0.047	0.315***	0.240***	0.268***	-0.219*	0.265***	0.453***	
10. Engagement in USE of WBA	10.4 (2.543)	0.462	-0.131	0.101	0.194*	0.263***	0.302***	-0.125	0.188*	0.385***	0.146

Overall Structural Equation Model

The output of the original model showed non-statistically significant indices of goodness of fit. Modification indices were used to support the removal of hypothesized paths which were reducing the overall fit of the statistical model where this was theoretically justifiable (figure 23).

Figure 23. Structural Equation Model of Surgical Trainee feedback-seeking behaviour in the context of WBA

This figure shows surgical trainees feedback-seeking behaviour within and outside of the context of WBA. Individual standardised regression weights - * indicates a relationship is significant to $p < 0.05$, *** indicates a relationship is significant to $p < 0.001$. R² is the percentage of variance explained for that specific variable. Hypothetical relationships H1a/b, H3, H6, H7, H8 were supported and relationships for H1c, H2a/b, H4, H5, H9 were not statistically significant within the final model.

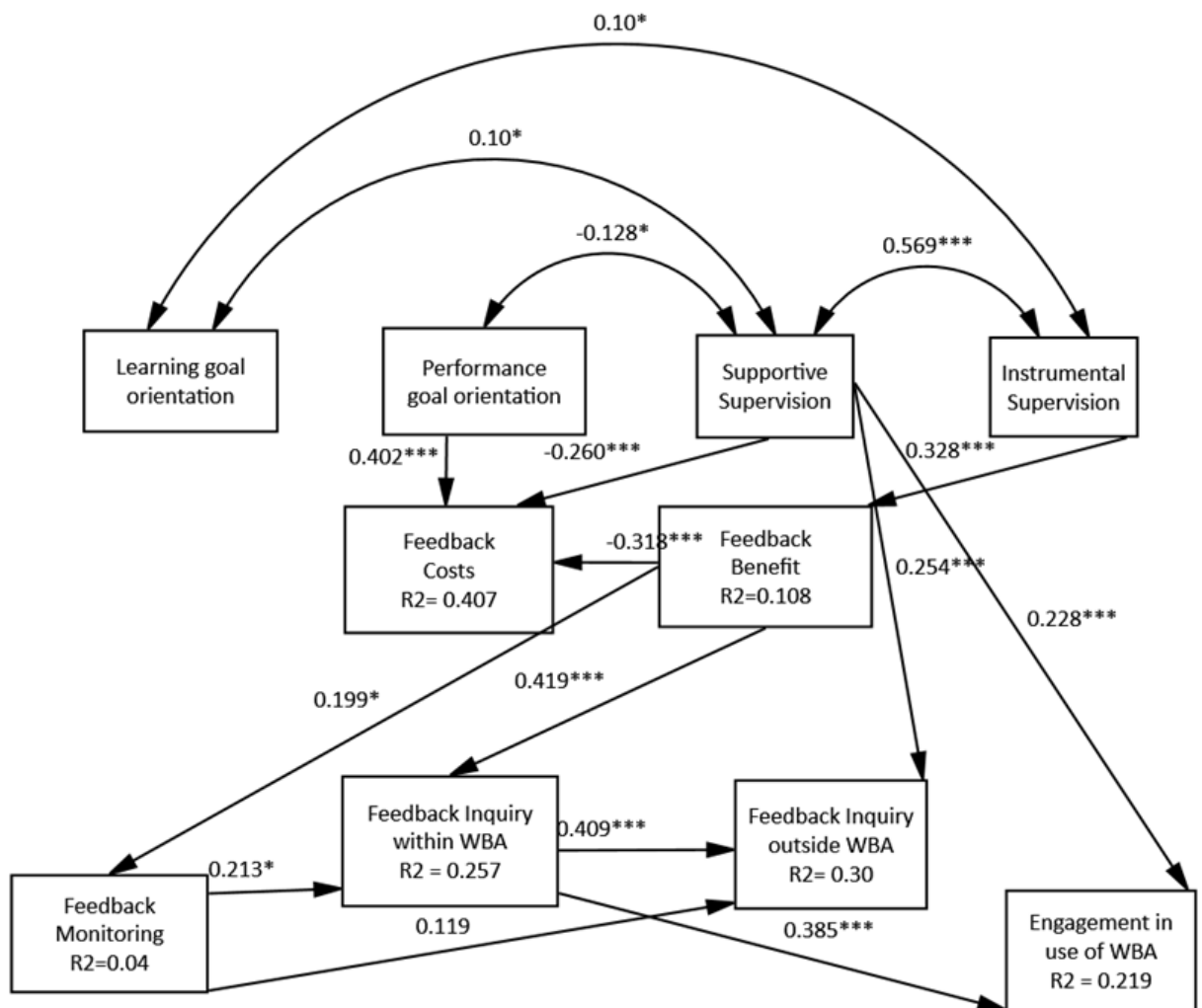


Table 8. This table shows the indices of model fit

	CMIN/DF	CFI	RMSEA	PCLOSE
Acceptable levels	1 is best	>0.95	Ideal <0.05 accept <0.08	Non significant
Final model	1.620	0.953	0.059	0.290

Abbreviations: CMIN/df indicates chi-square/degree of freedom ratio; CFI, comparative fit index; RMSEA, root mean square error of approximation; PCLOSE, test for null hypothesis that RMSEA (in the population) has *P* value less than 0.05

The final structural model fit is good suggesting that over 95% of the co-variance in the data is explained by this model (Table 8). This model (Figure 23) shows that some trainees seek feedback by engaging in using WBA and trainees who directly inquire for feedback using WBA also engage in using WBA. However, this model did not support the hypothesis (H1c) that trainees who perceive feedback beneficial engage in using WBA.

The model shows feedback benefit is associated with feedback monitoring and inquiry (H1a/b) however no association between perceiving personal feedback costs and engaging in feedback monitoring or inquiry was found (H2a/b). Perceiving benefit to feedback was negatively associated with perceiving personal costs to feedback (H3).

Trainees with a learning-goal orientation in the context of WBA was not associated with perceiving feedback benefits (H4) or personal feedback costs (H5). For trainees with a performance-goal orientation, this was associated with perceiving high personal costs to feedback (H6). An instrumental trainer supervisory style was associated with trainees perceiving benefit to feedback (H7) though this was not described with supportive trainers (H9). Trainees who perceived their trainer was supportive perceived low personal costs to feedback (H8).

In addition to the pre-determined hypotheses, the model supports an association between trainees seeking feedback through inquiring (within and outside of WBA), via monitoring and through engagement in using WBA. Secondly engagement in using WBA directly relates to trainees who perceive their supervisor supportive. Finally, the predictors of feedback-seeking behaviour correlate with one another. Trainers who are perceived as supportive also display instrumental qualities. Perceptions of supportive and instrumental supervision correlate with learning goal orientations in trainees. Performance goal orientation is negatively associated with supportive trainers.

Discussion

This study demonstrates that surgical trainees seek feedback within and outside the context of WBA in the clinical workplace. Trainees also infer feedback from their trainers' interactions with themselves and colleagues informally (feedback monitoring). Trainees who seek feedback within and outside WBA engage in using WBA.

Hypotheses 1a-c

In agreement with previous studies, trainees who perceived feedback as beneficial directly asked for feedback using WBA and engaged in feedback monitoring (66, 79, 111, 135) but did not report engagement in using WBA. This may reflect trainees' perceptions of the quality of feedback generated through WBA as the existing literature suggests that only half of WBA contain constructive written feedback (118). Additionally, trainees' perception of the personal benefit of feedback may not be a strong enough mediator compared to other predictive or environmental factors.

Hypothesis 2a-b, 3

The relationship between perceptions of personal "costs" and seeking feedback appears complex and no association between these variables was found mirroring research where individuals and their supervisors frequently engage in feedback interactions (111, 135) and review evidence (66). Furthermore one study suggests that personal costs didn't deter individuals from seeking feedback (135). However other work reports that perceiving high personal feedback costs is associated with feedback monitoring (79) and negatively with feedback inquiry (137).

All UK surgical trainees are required to complete WBA, as an assessment of their learning, to allow progression in training. Therefore over time, trainees may overcome perceived personal costs to seeking feedback in order to comply with mandatory requirements. Trainees' perceptions of personal costs and benefits to feedback are negatively associated as expected therefore these mediators are discriminatory.

Hypotheses 4-6

In contrast to previous studies learning goal orientation was not associated with perceptions of feedback benefit or costs (67, 79, 111). It is possible that the instrument for learning-goal orientation did not transfer well into the context of WBA from its original use with university students (131). However it has been used in postgraduate medical education (79) and in this study the instrument has a relatively good index of reliability.

Our finding that trainees with a performance-goal orientation is associated with perceiving high personal costs to feedback in agreement with previous studies (67, 79).

The “learning” and “performance” goal orientations (129, 131) described are rooted in social cognitive theories of motivation (144). These self-theories, individual’s ideas about what competence is and what it means for ‘self’, can influence the different kinds of behaviour that emerge when individuals are confronted with challenge. Self-theories describe individuals as either entity theorists (viewing a trait as fixed) or incremental theorists (believing a trait can be developed) and these are domain specific (130). Entity theorists set performance goals in keeping with their concerns about performing well, whereas incremental theorists set learning goals to improve their performance in specific tasks (129). Effective supervision could facilitate trainees in pursuing a learning-goal orientation and improving their skills through seeking feedback. This strengthens our findings that learning-goal orientation is positively associated with supportive and instrumental supervision. Whilst performance-goal orientation is negatively associated with supportive supervision.

Hypotheses 7-9

This study found that instrumental supervision was positively associated with feedback benefit which is consistent with previous research (111). It is plausible that trainers who structure and organise their trainees work act as good surgical role models, who engage in observing their trainees undertake WBA, and therefore their feedback carries “credibility” (81). Trainees who perceived their trainer as supportive perceived few personal costs to feedback, in line with previous research (79, 111). Supportive supervision may make seeking feedback less personally threatening to trainees and reflect the importance of the trainee-trainer relationship in encouraging trainees to seek feedback (80). This study demonstrated no direct relationship between supportive supervision and feedback benefit, in contrast to a previous study (79), however supportive supervision was directly associated with seeking feedback outside WBA and engaging in using WBA. These findings are consistent with previous research which suggested that perceptions of feedback value may only partially mediate the relationship between a positive supervisory style and feedback seeking behaviour (111). Unfortunately, we cannot differentiate groups of trainees based on the length of their educational relationship with their supervisor and how this could affect their feedback seeking behaviour.

Relationships generated within the model

This study showed that supervisory styles are linked to trainees' goal orientations, with a learning goal orientation being positively associated with supportive and instrumental supervision. Previous work has suggested that instrumental supervision is important to trainees' perceptions of feedback benefit and supportive supervision reduces trainees' perceptions of personal feedback costs (111). Secondly, when faced with unsupportive supervision, trainees' personal goal orientation plays a greater role in determining their perceptions of feedback benefit. Therefore, trainees' perceptions of their trainers' supervisory style and the trainee-trainer relationship are important in encouraging trainees to seek feedback and use WBA. The importance of this relationship has been shown to affect how trainers provide feedback in the context of standardized training and interactions with trainees (70) and feedback should be conceptualised as a communication process between trusted colleagues (64, 145). Some authors suggest trainees and trainers should engage in developing shared "educational alliances" (146).

In summary, this study advances the existing literature around trainees' perceptions and use of feedback by investigating surgical trainees' feedback seeking behaviour using previously defined constructs from the literature applied to a new setting, workplace based assessment.

Limitations

This study had a sample size of over 70% drawn from a broad geographical area including surgical units of differing sizes. However, we were unable to investigate non-responder bias. The use of instruments derived from organisational psychology assumes transferability, however the influence of the clinical environment, postgraduate surgery, may be an important influence on extrapolation.

The low Cronbach's alpha for engagement in the use of WBA, slightly reduces the overall goodness of fit of the model, and suggests that when and how trainees engage in using WBA is complex. Also in addition to individual factors contextual factors play a role in this process. This work didn't specifically explore the impact of the "learning culture" (78) within each department. This can only be inferred from trainees' perceptions of their trainers' supervisory styles. Finally, quantitative data alone may not fully explain the complex scenarios in which feedback interactions are played out.

The construct for learning-goal orientation did not translate well into the context of this study, despite reasonable indices of reliability. An alternative self-motives approach to investigating trainee feedback seeking by asking questions relating to “self-assessment” and “self-improvement” motives may yield insightful results (68).

Future research

Qualitative research is needed to explore the relationship between trainees’ perceptions of the personal costs to feedback and feedback-seeking in more depth: to unpick trainees’ perceptions of how feedback costs relate to the mandatory nature of the WBA system and in what circumstances trainees overcome their anxieties in order to seek feedback. A self-motives approach to exploring trainees’ motivations for seeking feedback and its relations to perceptions of the personal benefits to feedback could improve our understanding of these complex dynamics.

The practical implications of this study

Trainees should be provided with specific training in seeking and using feedback constructively, either independently or collectively with their trainers. Trainers are mandated to engage in formal training in providing feedback and using WBA in the UK (127) but there is no such national arrangement for surgical trainees.

Trainers should act to provide trainees with the opportunity to engage in performing workplace tasks under observation, which trainees can receive specific and timely feedback on, using WBA. This can be achieved as part of normal clinical practice if the intention is explicit to all. Trainers can also encourage trainees to seek feedback by acting supportively to reduce trainees perceived personal costs to feedback.

Conclusions

Trainees actively engage in seeking feedback and using WBA within the clinical workplace. Trainees engagement in seeking feedback is related to their perceptions of the personal costs and benefits of seeking feedback, their motivations for seeking feedback and their notion of how supportive and instructive their trainers are.

Encouraging trainees to actively seek feedback by providing them with training and creating a supportive environment for specific performance feedback interactions should positively impact on the ability of surgical trainees to seek feedback.

5. Qualitative; “Playing the game” How do Surgical Trainees Seek Feedback using WBA?

Research Question 1. In what ways do surgical trainees perceive WBA as an assessment for, and of their learning?

Research Question. 2 How do perceptions of WBA influence opportunities for feedback between surgical trainees and trainers?

Research Question 3. How do trainees translate feedback encounters both within and outside WBA into their subsequent clinical practice?

OUTCOMES

- 1) Trainees’ perception of WBA as an assessment of learning leads them to “play the game” and seek positive feedback and avoid negative feedback in the context of WBA.
- 2) Outside of WBA trainees seek negative feedback which they perceived to be important for enabling change in practice.
- 3) The trainee – trainer relationship is fundamental to the ways in which trainees seek feedback.

This work has been published in Medical Education September 2017 (Appendix 5).

Introduction

Trainees actively engage in seeking feedback in the clinical workplace (79, 80, 147). This is supported by research from the field of organisational psychology (66, 111) which largely explores feedback seeking in higher education, business and military contexts. Feedback seeking behaviour has been defined as *“the conscious devotion of effort towards determining the correctness and adequacy of one’s behaviours for attaining valued goals”*(135).

The previous quantitative section of this work suggests that trainees do engage in seeking feedback in the context of WBA. This related to trainees’ perception of personal benefits to feedback, their supervisor is supportive and they are motivated to learn (147). This is supported by a quantitative study investigating trainees feedback seeking behaviour in the context of night shift working (79). A meta-analysis of the feedback seeking literature suggests that individuals who perceive feedback beneficial, want to obtain feedback from

others (external propensity for feedback), have greater self-efficacy (context specific) and a strong relationship with their superior are more likely to engage in seeking feedback (66).

Qualitative research with GPs, where WBA were formative and often voluntary, suggested that deliberate planning of observations and feedback was essential to undertaking WBA. However, apprehension about being observed and receiving feedback had a powerful negative effect on WBA use (65). Further qualitative research in undergraduate veterinary students, found feedback-seeking related to personal factors including self-image, ego and benefits of feedback (80). These findings are supported by the psychology literature suggesting that individuals have one of the following motives for seeking feedback: to guide learning, for image or ego enhancement (148). A recent meta-analysis suggests that individuals' attitudes towards seeking feedback, including their desire for feedback, interact with their motives for seeking feedback. They then weigh up the personal costs and benefits before engaging in seeking feedback by directly inquiring or observing their superiors behaviour to infer feedback, feedback monitoring (66).

This study explores trainees feedback seeking in the context of WBA because WBA were developed to give trainees the opportunity to gather feedback for learning after being observed undertaking clinical activities within the workplace (12). However, a previous section of this work (section 3) showed that trainees and trainers perceived WBA represented an assessment of their learning. Also, that trainers were more likely to consider WBA represented an opportunity for learning compared with trainees. Previous studies suggest that engaging in using WBA (mini-CEX) had a profoundly negative effect on learning communication skills (75) in part due to a lack of alignment between trainees' learning goals and feedback received. Trainees described that feedback from WBA was beneficial for learning in theory rather than in practice in another different study (149).

How trainees' perceptions of the personal benefits and costs to feedback interact with the mandatory nature of WBA remains to be explored. Why trainees choose to seek feedback within and outside assessment systems at different time points and how they subsequently use this feedback in the postgraduate clinical workplace remains unclear.

Research Questions

1) In what ways do surgical trainees perceive WBA as an assessment for, and of their learning?

2) How do perceptions of WBA influence opportunities for feedback between surgical trainees and trainers?

3) How do trainees translate feedback encounters both within and outside WBA into their subsequent clinical practice?

Methods

Our quantitative work showed that trainees perceived WBA represented an assessment of what they had learnt rather than an assessment for learning (116). Furthermore trainees' in certain circumstances will seek feedback using WBA, specifically when they perceived feedback beneficial and their trainer supportive (147). However, the complexities of how trainees' perceptions of the purpose of WBA interact with the ways in which they seek and use feedback in practice remain to be explored. By adopting a pragmatic stance (96), abductive processes allow quantitative data to inform inquiry by guiding the collection of qualitative data (109). This stance supports an inter-subjective relationship with the research process affording exploration of a "real world" which individuals may perceive differently (109). A template analysis approach enables us to use a structured approach to analysis and examine perspectives of different trainee groups simultaneously (150). It allows integration of my key quantitative findings, through the use of a small number of a-priori themes, without restricting analysis to these themes and therefore offering a 'rich' description of the data (151).

Setting

We sought a sample of maximal variance from centres in several UK regions (W. Midlands, London, Wales, and Yorkshire): a mixture of large University hospitals and District General Hospitals (large and small) which offers a robust sampling strategy in this context. The gender demographics of focus group participants suggests that this sample is representative, in 2014 nearly 30% of UK surgical trainees were female (152).

Participants

Eligible participants included general surgical trainees, Core trainee 1 to Speciality trainee 8 (postgraduate years 2 – 10), who complete WBA using the Intercollegiate Surgical Curriculum Programme (ISCP), the competency based curriculum and assessment system for UK postgraduate surgical training (117). For participant demographics see table 9. Progression in training is determined by a successful outcome at ARCP of which the mandatory completion of WBA are part, with minimum required numbers of WBA, 40 to 80

in total, being regionally set by regional postgraduate training boards (deaneries) or local higher surgical training committees.

A local project investigator arranged focus group meetings and all eligible trainees working within that unit were invited. Those who accepted the invitation to attend and were available participated in the focus groups. Prior to meetings potential participants were given written information and completed a consent form. Warwick Medical School Ethical Committee approval was granted for this study (Appendix 1a and 1b).

Table 9. Demographics of trainee focus group participants

	Grade of trainees		Gender	
	CT1-2	ST3-ST8	Male	Female
1	2	3	4	1
2	1	2	3	0
A	2	2	3	1
B	2	2	3	1
C	0	2	2	0
D	1	2	2	1
E	3	3	5	1
F	1	4	4	1
G/H/K	0	5	1	4
N	2	3	2	3
Total	14	28	29	13

Interviews

Focus groups represent an appropriate method of data collection for this exploratory study (99). They offer the advantage of being able to collect a range of data from different individuals at the same time. Participants can be stimulated to speak based on the comments of others, and those who may be reluctant to engage in an individual interview may be encouraged to contribute. Finally the group can act as a natural check against

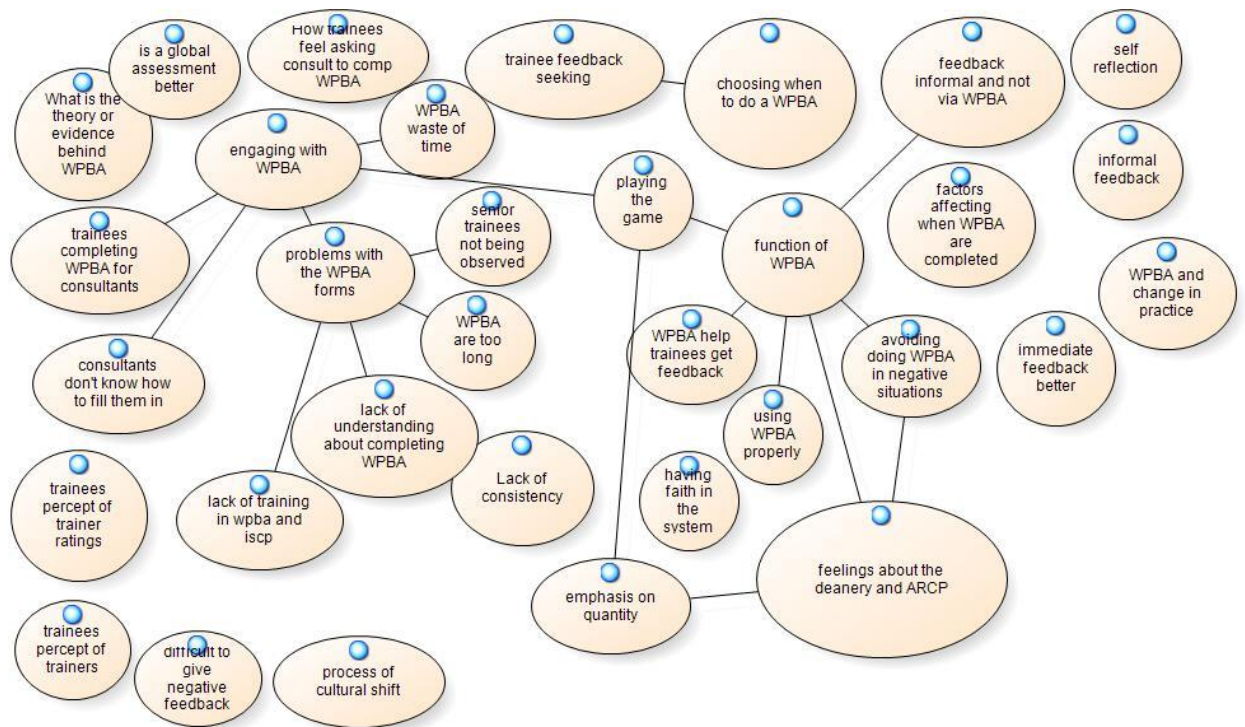
extreme views (153). The main disadvantages to this approach are dealing with dominant individuals and internal power dynamics. In having awareness of these issues the primary researcher acted as focus group moderator. Focus groups were undertaken between September 2012 and July 2013. The focus group guide was developed using the research questions and key findings from our prior quantitative work (122, 147). Opening questions included “Can you describe what you did the last time you completed a WBA?”, “How did you go about completing the WBA?”, “Do WBA provide you with an opportunity to learn from what you have done?” Focus groups, all conducted by the primary researcher, lasted approximately 30–60 minutes and were convened within surgical departments or regional centres. They were audio recorded using an MP3 player then transcribed and anonymised with individual and location specific information being removed.

Analysis

We identified three a-priori themes, from previous quantitative data analysis, to initiate our exploration of these data: assessment for learning, assessment of learning and using WBA (122, 147).

Interviews were transcribed verbatim by the primary researcher (AG). Two other researchers (TP, DM) thoroughly read and re-read two transcripts (FG 1, 2). The three researchers (AG, TP, DM) independently coded the first two transcripts and subsequently discussed their initial coding. Where initial codes fitted within an a-priori theme this was used, and if not additional new themes were developed. The initial coding scheme was discussed until consensus was reached. The qualitative data analysis tool NVivo was used to aid in organising data analysis. Initial themes were organised into a diagrammatic template (figure 24) and then linked into broader overarching themes. This template was utilised to analyse further data (AG). Data analysis was iterative and any material which did not fit within the thematic template was, after discussion between the three researchers, incorporated through the development of additional themes. The final template with supporting quotes from the data was agreed by the three researchers. Focus group data was collected until saturation. Saturation was determined when no new material emerged from analysis of the final two focus groups. Participant validation was carried out after data analysis was completed: a group of trainees, who had participated in several different focus groups, met to review the study results and had an open discussion about whether the analysis was an accurate reflection of their views. No major changes to the analysis were required as a result of this meeting.

Figure 24. Initial coding towards development of major themes

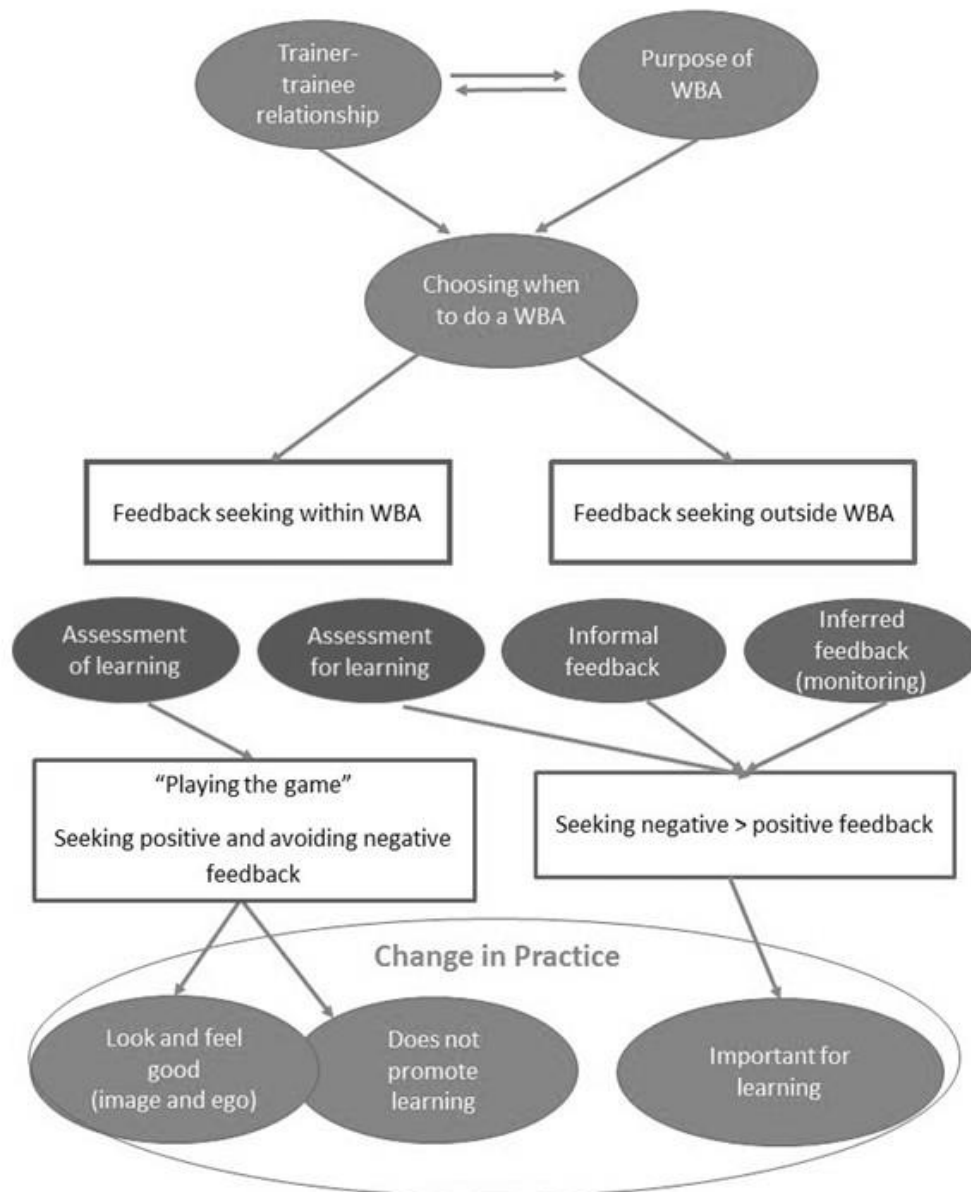


Results

In total, 42 surgical trainees, 14 Core trainees (FY2, CT1-2) and 28 Speciality trainees (ST3-8), 29M: 13F, from four UK regions, participated in 10 focus groups. Each focus group had between 2 and 6 participants. The site with 2 participants was a small district general hospital with only 2 trainees.

Five key themes emerged from the data analysis: surgical trainees' perceptions of the purpose of WBA, trainer-trainee relationships, choosing when to do a WBA, change in practice and time (figure 25). The a-priori themes, including assessment for learning and assessment of learning, were incorporated within "purpose of WBA". Use of WBA was incorporated within "choosing when to do a WBA" and "change in practice".

Figure 25. Trainee template analysis; Relationships between major themes, except time which pervaded all the other themes.



Purpose of WBA

Trainees suggested that WBA represented a chance to learn from clinical tasks, gather feedback from their trainer and engage in reflection about workplace activities.

“if it is done well you can get an awful lot of learning opportunities out of it and .. it gives you an awful lot of feedback” B.1

Whereas many other trainees perceived WBA represented an assessment of learning.

“No I don’t think it’s a learning tool I think it’s an assessment tool. ” C.3

Some perceived WBA represented a “tick box exercise”.

“it’s a box ticking exercise. I only do it because I have to. I don’t do it because I think it benefits me in any way” 1.1

Many trainees were confused about the purpose of WBA. The dual role of WBA as an assessment for learning, and of learning led trainees, trainers and review panels to hold different views of WBA. Trainees’ suggested that the numbers of WBA required drove them to consider WBA as an assessment of learning rather than for learning.

“Your ARCP panel are wanting something different out of it from what you want out of it as a trainee and your trainer wants something else different out of it, and the form is not meant to fill you know three peoples’ (different agendas)” 2.3

“they .. put that sort of figure up in your head (80 WBA/ year) then you are less likely to think of them as a constructive feedback episode, it’s more like I’ve got to get that many done ...” E.1

Trainer-trainee relationship

Nearly all trainees described that their decisions around when to seek feedback and perceptions of WBA related to their relationship with their trainer.

“it just depends on what your relationship with the person who is giving you the feedback” N.5

Trainees commented on a lack of engagement and misunderstanding around the use of WBA by some trainers.

“The trainers aren’t engaged we have to do to get where we want to be OK and with certain trainers they are more aware. The majority I don’t think really are but they’ll just help you in order to get by.” C.4

Trainees were aware of the reluctance of trainers to formally record deficiencies in trainees’ performance and that different trainers rated them differently.

“People are quite scared of putting “outstanding” or “needs work” A.2

Trainees avoided specific trainers who gave negative feedback,

"Like I don't get certain consultants to do things particularly because arguably they're more critical on paper and then in an ARCP environment it then looks bad on me." C.2

and asked for positive feedback:

"You definitely go to the people who are ... going to give you a good or better mark." 2.1

Choosing when to do a WBA

Trainees who perceived WBA represented an assessment of learning were driven to "play the game" and seek personally advantageous feedback using WBA.

"I think you've got to play the game" B.1

WBA represent an assessment of learning

Many trainees were driven to seek positive feedback (to look good, receive praise) using WBA.

"I actively pick a procedure that I know I did well in and ask someone to rate me on it." 1.4

Similarly they avoided seeking "negative" feedback using WBA which maybe subsequently viewed as an assessment of learning at ARCP.

"P3: If I thought something went really badly I wouldn't ask for a WBA

P3: ... you know you have the informal feedback but you don't want that to be documented." E.3

Trainees suggested that they were anxious about revealing a lack of knowledge or skills to their trainer whilst completing WBA.

"if I did a procedure and I was absolutely shocking at it there's no way I would be asking for an assessment on it." B.10

However trainees sought "negative" or challenging feedback informally outside of WBA.

"Some form of objective feedback is useful. There's no operation that you are doing with your boss where you don't have "What do you think about doing?" or "I do it this way"" 2.1

"I don't think throughout my career I've worked for somebody and not had feedback certainly where I need to improve. " E.4

Trainees also inferred feedback.

"... if nobody has criticised you or had a go at you then you know you are alright."

N.1

WBA as an assessment for learning

Some trainees sought challenging feedback from a trusted trainer, or only when they could balance this against positive feedback using WBA.

"We are in training positions and yes I'm not going to be able to do some operations very well. Actually I want to document those because those are the ones that I am most likely to reflect on." F.1

"I think if you can do that in the context of a) a boss who can who understands the principle of assessment and b) if you have enough good assessment forms but you know it will actually be balanced out" G.3

Change in Practice

Trainees' choices around whether to seek feedback within or outside WBA and the feedback topic affected the usefulness of feedback for changing clinical practice. Trainees were aware that positive feedback might not guide future learning.

"positive feedback is nice but it's not always going to be productive for you" E

Trainees stated they preferred feedback on tasks that they were not doing well to enable change in practice.

"everyone knows the most valuable feedback is the stuff that you are not doing so well that you can improve" B.2

"I find negative feedback easier to use to be honest. I'm more likely to change my practice on negative feedback."F.3

A consistent message was trainees' perception that real learning occurred outside WBA. This related to trainees apprehension about the role of WBA as an assessment of learning.

“runs in parallel then to your real learning I suppose where you are actually asking them these questions and trying to improve your knowledge base whereas you probably wouldn’t do so if it was a formal CBD perhaps” B.1

Time feedback sought

Trainees felt that seeking immediate feedback using WBA provided them with structured task-specific feedback.

“One of the trainers is very good and will sit down with you after the operation and do it then and there which is the way I think you will get maximum benefit from actually going through the form” F.2.

Despite this, many trainees sought delayed feedback when using WBA. They described waiting until after they perceived performing a task well before seeking feedback which related to their perceptions that WBA were subsequently used as an assessment of learning.

“P3: ... by doing it prospectively you avoid this. Not knowing what the outcome of the case is going to be. N.3

P1: ...if you then make a mistake when you have got a WBA I think it is going to be even worse.”

P3: “..., if you are going to do them properly you should say before you do anything that you want this assessed but you are going to have to be very brave if you are the only person who is doing that.” E.1

Trainers and trainees perpetuated each other’s behaviours around the timings and use of WBA for feedback.

“You see I work for a boss who feels that way. There is no retrospective form filling. You have to tell him in advance what you want. He then bizarrely decides not to interrupt at all despite me struggling 2.3

“But the majority of consultants will just sort of go “Oh God, you want one of these again”. Fill it in really quickly, give you no feedback whatsoever and it is just a tick box.” N.1

Discussion

This study shows that trainees' perceptions of the purpose of WBA, their relationship with their trainer and time considerations informed when they chose to seek feedback. Trainees' perceived that the purpose of WBA was not clear to them and this led to tensions in their use of WBA to seek feedback. Trainees' who perceived WBA as an assessment of their learning "played the game" and sought positive feedback and avoided negative feedback to promote a positive self-image, despite this feedback not guiding a change in their practice. In specific situations, trainees viewed WBA as an assessment for learning and so sought negative feedback. Outside of WBA, trainees sought negative feedback to enable change in practice. Trainees' active engagement in seeking feedback is consistent with previous quantitative (79, 147) and qualitative studies which suggest trainees choose to seek feedback based on personal factors and the trainee-trainer relationship (80). Building on previous studies this work highlights the complexities in how trainees choose when to seek feedback using mandatory WBA. Previous work suggests using WBA is not emotionally neutral (65) and tensions within individual trainees, wanting feedback but fearing disconfirming feedback (76) may affect when trainees seek feedback.

Trainees uncertainty about the purpose of WBA played a huge role in determining their use of WBA. Many trainees perceived WBA as an assessment of their learning as seen in other studies (91, 134, 147, 154). Some trainees were unclear about the purpose of WBA, and other researchers conclude "*widespread confusion exists regarding the standards, methods and goals of individual assessment methods*" within the medical community (124). Trainees may have difficulty in perceiving WBA for learning as only half WBA contain written feedback (118) which may not identify specific areas for performance improvement (155).

Trainees' perceptions of their trainer are entwined with their decision-making around feedback seeking using WBA, and trainee's perceptions of their trainer's supportiveness (79-81, 147), clinical skills (81), credibility (81, 83) and engagement with WBA all play a role.

This study showed that trainees choose which trainers to ask for feedback based on the nature of feedback they could receive: trainees' concerns about summative aspects of WBA lead them to ask trainers they perceive would judge them favourably. Trainees actively seek feedback after they believe they have performed well, this is also documented practice by trainees in difficulty (156). In practice trainers must balance their roles as teacher and assessor, with evidence suggesting trainers' reluctance to give negative

feedback to trainees whilst maintaining an educational relationship (72, 76, 118). Therefore WBA may not currently facilitate a culture of learning and feedback within medicine (83), for which they were designed, but instead a culture of “gaming”.

The findings of this study can be linked to social cognitive theories of learning. These theories suggest individuals have different goals when faced with intellectually challenging situations. They either adopt a learning goal orientation *“a desire to develop the self by acquiring new skills, mastering new situations, and improving one’s competence”*. Alternatively they adopt a performance goal orientation, this comprises of a prove domain *“a desire to prove one’s competence and gain favourable judgements about it”* and avoid domain *“a desire to avoid the disproving of one’s competence and to avoid negative judgments about it”* (129).

These self-theories can be used to explore trainees’ interpretation of the unclear purpose of WBA. Trainees who perceived WBA represent an assessment of learning were driven to “play the game” and adopt a performance, prove, goal approach to their learning, and seek positive feedback to maintain a positive self-image and self-esteem.

Trainees also adopted a performance, avoid, orientation when they perceived WBA an assessment of learning, trainees engaged in acts of personal self-preservation e.g. avoidance of feedback which may carry ego or image costs.

This builds on previous work which, in a purely formative setting, reported that trainees make judgements about the feedback topic and consequent ego costs (negative emotions from negative feedback), versus ego benefits (enhanced self-esteem from positive feedback) (80) and work reporting trainees avoid negative feedback which is difficult to reconcile with self perceptions (76). These studies reflect a tendency to adopt medicine’s cultural norms in promoting a reluctance to reveal errors and shortcomings (70, 125).

In specific medical situations, trainees sought negative feedback from a trusted trainer to change their clinical practice. Those who sought negative feedback outside of WBA perceived feedback benefit, information for improving practice, outweighed any negative image or ego costs. Perceived feedback costs may be mitigated by seeking specific, contemporary feedback from a trusted trainer (64). These individuals may have a learning goal orientation towards learning and perceive a setback as a strategy which doesn’t work rather than an indicator of incompetence as in those with a performance goal orientation (157).

In this study trainees reported that negative feedback was most useful for changing their practice. Others have suggested that negative feedback may stimulate reflective practice, feedback acceptance and use (158). However, alternative research suggests that individuals trust positive feedback, attributing this to their own behaviour, and distrust negative feedback and attribute that to external factors (81). Our work suggests that trainees seek negative feedback when initially learning a task, when they perceive their performance poor, meaning feedback sought outside WBA is less threatening to self-esteem and this, coupled with trainees' goal to improve performance, may explain why negative feedback is sought.

It is important to consider that WBA were designed to assess an individual's competence within the workplace, which is at odds with the complex socially situated act of undertaking WBA within a busy clinical workplace (83, 126). We have highlighted that the perceived purpose of WBA can have a profound effect on trainees' feedback seeking behaviour.

Limitations

Focus groups were conducted within individual hospital and regional centres and therefore the ways in which trainees were invited to participate could have created bias in the study group. In some centres the focus groups necessarily had a small number of participants as few trainees worked in these units. This did not limit the discussion or quality of data collection. Participants discussed only what they were willing to disclose and potentially hierarchical relationships between trainees may have prevented junior participants from speaking fully. The focus group moderator was aware of this and actively encouraged junior participants to speak. Finally, all researchers comparatively coded two focus groups and a single researcher applied this coding framework to all focus group transcripts.

Implications of this study

Trainees actively choose when to seek feedback using WBA. We advocate that the purpose of WBA must be clear so that trainees are explicitly aware why they are using WBA. The suggested dual role of WBA continues to provide confusion over purpose to many trainees, trainers and ARCP panels. We suggest that some WBA are purely formative, that trainers should be able to request trainees complete WBA and that WBA are performed after certain numbers of index procedures/specific time intervals.

There is a great need to provide training environments which afford trainees and trainers the skills and opportunities to form relationships which foster trust and allow trainees to actively seek feedback. There remains the need to promote a culture where asking for

feedback is acceptable and feedback is given in a way which trainees can use effectively to guide clinical practice.

Future research

Further work will explore the feedback communication process through a direct comparative exploration of qualitative data from trainees and trainers to explore congruity and challenge in feedback perceptions and experiences.

Conclusions

We have explored the complex relationships between the unclear purpose of WBA for learning and of learning, with trainees' interactions with their trainers to elucidate how these inform their use of WBA to seek feedback. Outside of WBA trainees seek critical feedback which they perceive to be important for changing their practice. The emphasis placed on WBA as an assessment of learning has driven trainees to "play the game" and use WBA to seek positive feedback when they feel they have performed well. This is at odds with the alternate purpose for which WBA were created to provide trainees with feedback so they could improve their clinical performance. The need to provide postgraduate training environments which afford both trainees and trainers the skills and opportunities to form relationships which foster trust and allow trainees the opportunity to actively seek feedback remain to be developed.

6. Qualitative; Trainee Self-Motives for Seeking Feedback

Research Question 1: Can a self-motives framework of feedback seeking explain why surgical trainees choose to seek feedback, in the context of WBA, within the clinical workplace?

Research Question 2: Do contextual factors affect the circumstances in which specific self-motives predominate?

OUTCOMES

1) Trainees feedback seeking behaviour in context WBA can be broadly fitted within a self-motives framework.

2) Trainees' feedback seeking within WBA related most strongly to motives of self-enhancement and self-verification whereas outside of WBA trainees report self-improvement and self-assessment motives for seeking feedback.

3) Where trainees perceived WBA represented an opportunity for them to learn, assessment for learning, they described a self-improvement motive towards seeking feedback. Where trainees perceived WBA represented an assessment of their learning trainees spoke about tensions between the self-motives of self-enhancement and self-improvement.

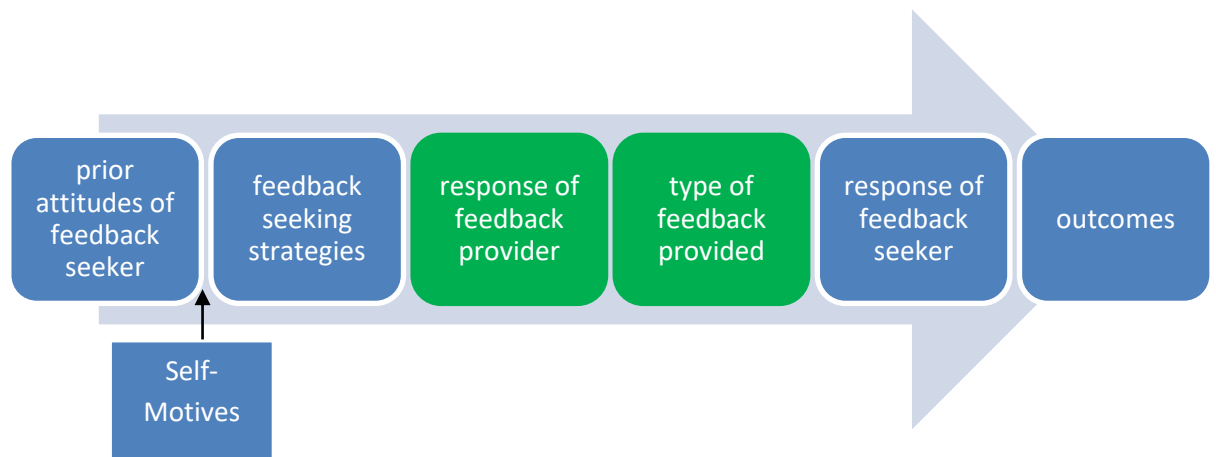
Under review by Academic Medicine pending amendments September 2017

Introduction

Trainees actively engage in seeking feedback in the clinical workplace (79, 80, 147). Section 4 of this work reported that surgical trainees engage in seeking feedback in the context of WBA. This model, based on questionnaire data, showed that trainees who value feedback seek feedback via directly inquiring and engaging in feedback monitoring. Trainees who perceive feedback carries personal value relates to their desire to obtain accurate feedback so they can learn new tasks/skills (learning goal orientation) and effective supervision. Whereas those who are orientated to look good and maintain a positive self-image (performance goal orientation) perceive high personal costs to feedback. Our subsequent initial qualitative, template analysis, suggests that trainees who perceive WBA represent a test of their performance are driven to "play the game" and seek positive feedback and avoid negative feedback using WBA. Whereas outside of WBA trainees seek negative feedback which they perceive to be important for change in their clinical practice. The trainee-trainer relationship is fundamental to the ways in which trainees seek feedback.

The role of motivation in feedback seeking is graphically portrayed in the figure below (Fig 9). This figure from a review of the feedback seeking literature suggests that motivations or specifically self-motives play a role in guiding individuals perceptions of the personal benefits and costs to feedback and ultimately when and how individuals engage in seeking feedback via feedback inquiry and or monitoring. However why trainees are motivated to adopt these approaches remains unanswered?

Figure 9 (repeated from section 1 here) Feedback process considering learners as active seekers of feedback adapted from (66).



Seminal work from the field of organisational psychology suggests that individuals have one of the following motives for seeking feedback. An instrumental motive to seek feedback in order to meet goals and regulate behaviour (148). An ego based motive to seek feedback that can bolster ego and avoid feedback that might threaten ego (148). Finally an image based motive to protect and enhance ones public image (138).

The Instrumental motive for seeking feedback has in part been based on the uncertainty reduction motive. That *“feedback can reduce uncertainty regarding both one’s roles and the performance contingencies in the environment”* (159). Initial research suggested that organisational factors including job ambiguity and contingency uncertainty, uncertainty about the link between how employees performance is evaluated and how this could relate to achieving promotion or other secondary gains, were associated with more frequent feedback seeking (160), this effect was reduced if individuals had a high tolerance of ambiguity (161). Further research however has demonstrated uncertainty was negatively associated with feedback seeking (135) and in some circumstances, e.g. when starting in a new job, seeking feedback did not reduce uncertainty (162). Furthermore a recent

systematic review has failed to identify a relationship between uncertainty reduction and feedback seeking (66).

Having an instrumental motive to seek feedback may drive individuals to seek negative feedback which can carry more important informational value than positive feedback. In a study of managers in business seeking negative feedback was associated with increased accuracy of individuals knowledge about others evaluations of their performance (136).

Individuals with ego based motives for seeking feedback strive to bolster and protect their ego (163). The literature regarding ego and self-esteem is confused. With one author attempting to unravel this issue by separating global self-esteem (how an individual views themselves overall) from specific self-views (how individual evaluates given personal attribute) (164). Prior experience or success in performing a task may make ego protection concerns less important to individuals and enable them to seek negative feedback to improve their performance (165).

Individuals who are motivated to defend and enhance their image tend not to directly ask or inquire for feedback (148). These individuals may seek out positive feedback to maintain a positive self-image even if the feedback will have no informational value (138).

It has been suggested that motives for seeking feedback are a mediating factor between goal orientation and feedback seeking behaviour (166). This suggests parallels between the instrumental motive for seeking feedback described by Ashford (148) and the personal feedback benefit used by VandeWalle (111) and in the model of feedback seeking in section 4.

A systematic review of the feedback seeking literature has suggested inconclusive findings for the motives described by Ashford in the literature (66, 68). Specifically in relation to the uncertainty reduction aspect of the instrumental motive (66) and the ego based motive in terms of the relationship between self-esteem and feedback seeking behaviour with studies showing positive, negative and insignificant associations (137, 167-169). This has led researchers, Crommenlinck and Anseel, to develop a self-motives approach to feedback seeking behaviour (68). This model suggests individuals are motivated to seek feedback based upon one of four self-motives. These include self-assessment, self-improvement, self-verification and self-enhancement.

Description of self-motives

These self-motives are described below with workplace examples (see Table 10).

Self-assessment is the motive to obtain accurate information about the self. Individuals want to see themselves as they really are. This can lead to deep processing of feedback information (170) along with self-improvement compared with self-enhancement and self-verification.

Self-improvement is the motive to improve ones' traits, abilities and skills. Individuals strive for true betterment of themselves.

Self-enhancement is the motive to enhance the favourability of self-views. Individuals are driven to seek and remember positive information which puts them in a good light whether this is justified or not. They seek to avoid negative feedback about performance and also present a favourable image of themselves to others (171).

Self-verification is the desire to maintain consistency between ones' central self-view and new self-relevant information. Individuals seek out self-confirming information from others to confirm their self-views and try to confirm their own self views to others. Individuals get others to confirm self-views positive or negative. It is possible that individuals experiencing high levels of certainty seek more feedback to obtain self-verifying feedback (172). Individuals motivated by a self-verification motive maybe more likely to dismiss self-refuting feedback as inaccurate and devalue the credibility of the source (171).

Table 10. Description of self-motives for feedback seeking behaviour (68)

Motive	Description	Clinical workplace example
Self-assessment	To obtain accurate information about the self	Choosing to undertake a clinical task that provides accurate feedback
Self-improvement	To improve one's traits, abilities and skills	Working on a difficult case or task that can stimulate learning
Self-enhancement	To enhance the favourability of self-views	Seeking positive feedback after mediocre performance
Self-verification	To maintain consistency between one's central self-views and new self-relevant information	Seeking confirming negative feedback after a bad performance.

We have chosen to use this self-motives model of feedback seeking to explore our data around trainee feedback seeking behaviour in greater depth and from a novel perspective. In doing so we seek to answer the following questions,

RQ1: Can a self-motives framework of feedback seeking explain why surgical trainees choose to seek feedback, in the context of WBA, within the clinical workplace?

RQ2: Do contextual factors affect the circumstances in which specific self-motives predominate?

Methods

This study involved the further analysis of data which was initially collected and analysed to explore surgical trainees' feedback seeking within the clinical environment (section 5).

Justification for use of a self-motives framework

I have chosen to explore our data using the previously described self-motives model of feedback seeking behaviour (68).

My initial qualitative findings suggested that trainees' perceptions of the purpose of WBA and their relationship with their trainer informed when they chose to seek feedback. Trainees who perceived WBA a test led them to "play the game" by seeking positive and avoiding negative feedback. Outside of WBA trainees sought negative feedback, which was most important for change in practice (section 5).

Trainees who perceived WBA represent an assessment of learning were driven to adopt a performance (prove) goal approach to their learning, and seek positive feedback to maintain a positive self-image and self-esteem. Trainees also adopted a performance orientation by avoiding potential negative feedback. By perceiving WBA as an assessment of learning trainees engaged in acts of personal self-preservation e.g. avoidance of feedback which could carry ego or image costs.

Therefore trainees' motivations for actively seeking feedback may relate to: their goal orientations, (based on self-theories of motivation), trainees' perceptions of the purpose of WBA (as an assessment of or for learning) and their relationship with their trainer within the workplace.

By using a self-motives framework (68) to further explore our qualitative data we are seeking to enrich our understanding of trainees' motives for seeking feedback in the context of workplace based assessment.

A concern in applying an individualistic self-motives framework to the data is that it does not capture the clinical context of trainees' feedback seeking encounters. The literature highlights that the context of postgraduate learning encounters is an important consideration in workplace learning (22, 173) and in order to overcome this potential pitfall in the data analysis and interpretation the researchers plan to explore these data to identify how contextual factors relate to individuals self-motives for feedback seeking.

Framework analysis

Framework analysis is not allied to any specific epistemological or theoretical position (174). It is geared towards the development of practice orientated findings (175) and was originally described by the national centre for social research as *“a content analysis method which involves summarising and classifying data within a thematic framework”*. This approach uses study participants’ complete responses, these are not broken into smaller sections within the analysis (99). Although the general approach in Framework Analysis is inductive, this form of analysis allows for the inclusion of a priori, as well as emergent concepts, for example in coding. This approach is important in this study where there are specific issues, self-motives framework, that we as the researchers wanted to address (176).

The advantages of using a framework analysis approach are that the data is organised but reduced, it retains links to the full data and data can be critically explored both across cases and themes (99).

This method is appropriate for thematic analysis of textual data, particularly interview transcripts, where it is important to be able to compare and contrast data by themes across many cases, while also situating each perspective in context by retaining the connection to other aspects of each individual’s account (174).

Reflexivity

The researchers are aware of their own positions. AG as a trainee who completes WBA as part of a mandatory training requirement also has a role in assessing more junior trainees using WBA. DM and TP have roles as clinical trainers and assessors, one having sat on Annual Review Panels.

Framework Analysis Methods

- 1) The three researchers read and re-read the transcripts until they were familiar with the data set.
- 2) The researchers then sought to apply the described self-motives framework to the data. NVivo was used as a qualitative data analysis tool to record and file our application of the framework to these data. Data which did not fit within the framework was also sought. Additional emerging themes were identified through open coding. The analytical framework was developed with the 3 researchers independently coding for self-motives within one focus group transcript to look for consistency in interpretation between the researchers. This initial coding was then compared and consensus reached whereby all 3 researchers agreed the coding framework.
- 3) The analytical framework was then applied to the whole data set by the primary researcher. Sections of data which corresponded to differing themes were indexed to the respective self-motives and other themes identified through open coding.
- 4) Comparison between transcripts was made to ensure that the self-motives maintained consistency in meaning across the data set. The self-motives were then charted against contextual themes identified from within the data. These included trainees' relationship with their trainer, feedback seeking within and outside of WBA and perceptions of WBA as for learning and of learning.
- 5) To map potential relationships between codes, we have used tables to physically explore the relationships between self-motives for seeking feedback and contextual factors. We have chosen to utilise the matrix function of nVivo to aid in this final step of the exploration of these data. As part of this we have given numerical value in terms of counts of self-motives. Though this is controversial in qualitative research simple counts can aid exploration of qualitative research in practice (177).

Results

In total, 42 surgical trainees, 14 Core trainees (FY2, CT1-2) and 28 Speciality trainees (ST3-8), 29M: 13F, from four UK regions, participated in 10 focus groups. Each focus group had between 2 and 6 participants. The site with 2 participants was a small district general hospital with only 2 trainees in the unit.

Self-motives framework

The self-motives framework was applied to the data with descriptive quotes in table 2. Self-assessment defined as the motive to obtain accurate information about the self is reflected in the following *“you are trying to identify your own weakness but it would be better if someone could sit down with you for 20 minutes and say well this is where you are going wrong this is where you are doing well”* (A.2). Self-improvement the motive to improve ones' traits, abilities and skills was captured in the following *“I thought that would be useful for my learning and it would be good to put on my ..er to put in my WPBA because I thought this is highlighting areas where I can improve”* (1.2). Self-enhancement defined as the motive to enhance the favourability of self-examined by *“So if you were completely rubbish for instance you just you would just delete the ones which don't go well or you choose the procedures that you are doing well in”* (1.1). Self-verification the motive to maintain consistency between ones' self-views and new self-relevant information is captured by the following *“it is always the easier thing to do it [WBA] on something that you are happy about and happy you can talk about”* (B.2).

The motives of self-assessment were coded 32 times, self-improvement 54 times, self-enhancement 45 times and self-verification 40 times within the focus group transcripts.

Table 11. The application of a self-motives framework.

	Quotes from focus group data
Self assessment	if I don't think my performance in an operation or .. case has been particularly good I will ask one of my trainers is there anything I should have done differently or is there anything I could have done better (1.2)
<i>Motive to obtain accurate information about the self (68)</i>	Mr x he watched me consent someone and he also watched me take a history in clinic and then examine them and do the things. And actually it does put you on the spot a little bit and again that was good for feedback. (G.1)
	P4: if you know someone or spend enough time with someone ... then they will give you feedback in a way that they know will help you. Like I'm not saying tell them all you're weaknesses and let them know everything that you don't know but if they feel that they can actually tell you and give you some more beneficial feedback. (B.8)
Self improvement	the reality is most of us get that while we are doing the operations. I er there's no operation that you are doing with you're boss where you don't have "What do you think about doing" or "I do it this way" er (2.1)
<i>Motive to improves one's traits, abilities and skills (68)</i>	P2: I think you learn more from doing assessments on something you don't know about because then it will spur you to go and find things out and go and learn more about something. (B.3)
	P3: I try to get the most amount of feedback. I try to rinse them of feedback. You know early stages of training you know I just want to know when I have done something wrong I definitely will seek feedback because that's the only way I will learn and next time I am in that situation hopefully I will be able to learn from this feedback that I get now. (F.3)
Self enhancement	P3: But even then you could think oh I was really good at that appendix but I've really [messed] up about 5 or 6 of them I am going to pick that one (1.1)
<i>Motive to enhance the favourability of self (68)</i>	P1: If you completely balls something up you know you have ... You are very unlikely to want to rush out and do a form about it. P4: yeh (2.1)
	So although you want to try and do each case based discussion and learn something from it and gain things from it errm it is always the easier thing to do it on something that you are happy about and happy you can talk about and you get that sense of satisfaction also that you have impressed your boss on something and it's all been signed off.(B.2)
Self verification	P3: Well I know what I do is that I actively pick a procedure that I know I did well in and ask someone to rate me on it. I don't pick one that I didn't do so well in its natural isn't it (1.3)
<i>Motive to maintain consistency between ones central self views and new self relevant information (68)</i>	P1: I've never had a boss who hasn't been open and honest at the time. And I'm I'm we are all clever enough to know when we've bugged something up. I think. Because we've seen how things should be done. So often you can and often I'll pre empt it by saying "I made a real hash of that" "yeh you did x". But actually I'd much rather that because thats how its gone.(2.1)
	But because you know you are being assessed and its being compared with other people, not directly at the time, but it's you are being assessed against other people do you want to be flagging up that you don't know things. (B.3)

Challenges to applying a self-motives framework

Occasionally more than one motive was discussed by a study participant within each comment which made discriminating self-motives difficult in a practical setting. This tension between different self-motives are further explored in the following quotes.

i) Self assessment (underlined) v self improvement (italic)

Trainees often reported that seeking accurate feedback performance, self-assessment, was linked to seeking information to improve subsequent practice, self-improvement.

“P1: and that’s not useful because some of the most useful cases that you should be putting in your PBA are the ones where something has not been quite right but then you put that down and the training committee turns round and says we’ve got significant concerns about your surgical technique. And you think what’s the point in me saying I am brilliant at all these things as opposed to *highlighting things that could have been done better*” (1.1).

ii) Self verification (underlined) v self enhancement (italic)

Trainees were motivated to seek feedback to maintain a consistent self view, self-verification, which was also entwined with their desire to portray a positive image of themselves to those around them, especially their supervisors, self enhancement.

“So, although you want to try and do each case based discussion and learn something from it and gain things from it erm it is always the easier thing to do it on something that you are happy about and happy you can talk about and *you get that sense of satisfaction also that you have impressed your boss on something and it’s all been signed off*” (B.2).

iii) Tensions between self-improvement and self-verification

Some trainees were motivated to seek feedback to improve, when they perceived they had performed poorly or things had gone wrong, but were only willing to accept and use feedback which conformed to their motivation for maintaining consistency with what they already perceived, self-verification.

“I did a wide local and sentinel node and I just I think someone was off sick so I was covering two things I didn’t I think I took the bit of cellophane off with the mark on it and just wasn’t quite thinking and got in there and got the patients mixed up and no patient came to

absolutely no harm but I sent a WBA afterwards because I said right well you can criticise the fact that I wasn't prepared to be doing that or supervised scrubbed or whatever it was and then I hoped that the next one was better and yeh it was quite good."(FGG.2).

Contextual factors affecting self-motives within the postgraduate clinical environment

After initial interrogation of the first two focus groups new themes emerged from within the data. These were broadly consistent with our initial template analysis (section 5). These themes support contextual factors that affect trainees' motivations for seeking feedback: trainees' relationship with their trainer, feedback seeking within and outside of WBA, and perceptions of WBA as for learning and of learning.

To look for relationships between these themes we chose to create a coding matrix, utilising the matrix coding tool available via nVivo. The results are presented in Table 12 and graphically in figure 26.

Table 12. Results of a matrix coding query for surgical trainees' self-motives for seeking feedback and contextual factors of the trainee trainer relationship, perceptions and use of WBA.

	A: trainee trainer relationship	B: Feedback seeking within WBA	C: feedback seeking outside WBA	D: WBA opportunity for learning	E: WBA assessment of learning
1: self assessment	7	20	7	3	3
2: self improvement	10	25	16	9	9
3: self enhancement	3	38	1	0	14
4: self verification	4	32	6	2	4

The numerical value within in box equates to the number of items coded (coding references) at each node.

Motives for seeking feedback and trainees' relationship with their trainer

Trainees who displayed a self-improvement and self-assessment motive towards seeking feedback also reported a positive relationship with their trainer.

Self-assessment and relationship – *"I think if you're more comfortable talking to someone say if you think you can say whatever you want to say and like letting them know that maybe you don't know something then they are going to find out and be able to assess you a lot better because they understand what you do and don't know a lot better and then they'll answer your questions. I think if you've got a good rapport with someone you are definitely more likely to get an assessment with them anyway"* (B.7).

Self-improvement and relationship – *"So sitting down after an operation and going through the bits you did well, the bits that you need developing is actually really really helpful. But it really requires the assessor to actually do that with you (and often a lot of the time actually in my previous jobs the assessor has just ticked it, e mailed me the form I'll sign it without actually having a proper session with you to go over the procedure)"* (1).

Trainees who displayed self-enhancement and self-verification motives for seeking feedback reported a more ruthless approach to their relationship with their supervisors.

Self-enhancement, self-verification and relationship - *"I suppose if you are rubbish I suppose its more difficult to get you to sign them off for stuff but I you can always pick someone you have buttered up and get you to sign them up for everything"* (1.7).

Motives for seeking feedback within and outside of WBA

Trainees motives for seeking feedback within the WBA system relate to all self-motives but numerically the data suggests more so in relation to the motives of self-enhancement and self-verification than self-improvement.

Self enhancement within the context of WBA – *"It's really possible to just pick the ones you've done well at. And you can totally fabricate an online persona that's really good"* (1.7).

Self-improvement within the context of WBA – *"I did that. I did that because I thought that would be useful for my learning and it would be good to put on my ..er to put in my WPBA because I thought this is highlighting areas where I can improve"* (1.1).

Trainees' feedback seeking outside of WBA, though discussed less frequently within the focus groups, tended to relate to the self-motives of self-improvement and self-assessment.

Self-improvement outside the context of WBA – “Which detracts again and almost runs in parallel then to your real learning I suppose where you are actually asking them these questions and trying to improve your knowledge base whereas you probably wouldn't do so if it was a formal CBD perhaps” (B.1).

Motives for seeking feedback in relation to trainees' perceptions of the purpose of WBA as an opportunity for learning or assessment of what they have learnt.

Where trainees perceived WBA represented an opportunity for them to learn, assessment for learning, then they displayed a self-improvement motive towards seeking feedback.

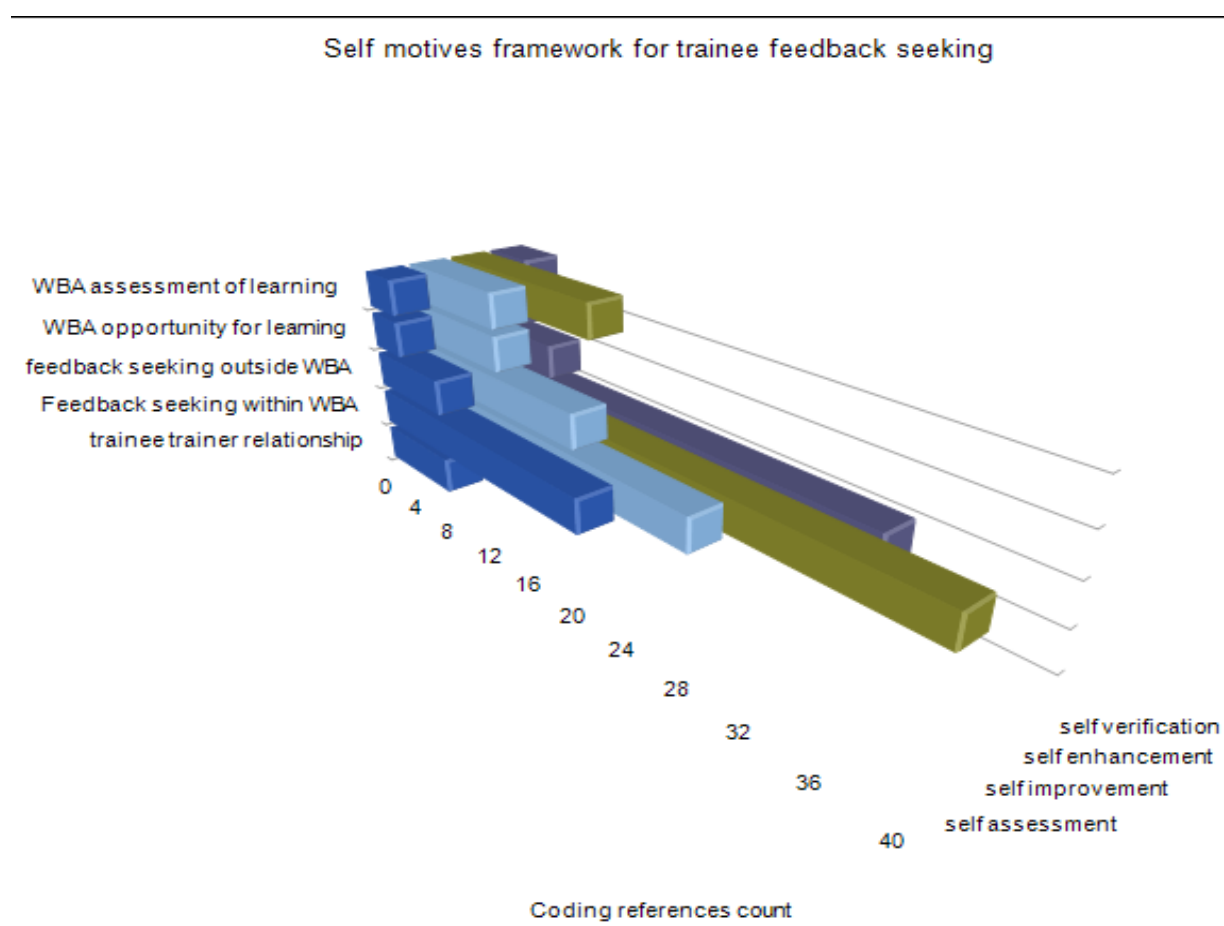
Where trainees perceived WBA represented an assessment of their learning trainees reported a mixture of self-enhancement and self-improvement motives, with the former predominating slightly. The following quotes highlight how WBA caused tensions between the motives of self-improvement (in blue) and self enhancement (red).

I think you learn more from doing assessments on something you don't know about because then it will spur you to go and find things out and go and learn more about something. But because you know you are being assessed and its being compared with other people, not directly at the time, but it's you are being assessed against other people do you want to be flagging up that you don't know things. (B)

So although you want to try and do each case based discussion and learn something from it and gain things from it errm it is always the easier thing to do it on something that you are happy about and happy you can talk about and you get that sense of satisfaction also that you have impressed your boss on something and it's all been signed off. (B)

because some of the most useful cases that you should be putting in your PBA are the ones where something has not been quite right but then you put that down and the training committee turns around and says we've got significant concerns about your surgical technique. And you just think what is the point in me saying I am brilliant at all these things as opposed to highlighting things that could have been done better. (C)

Figure 26. Self-motives framework for trainee feedback seeking



Discussion

Surgical trainees' motivations for seeking feedback within the postgraduate clinical environment can be explored using a self-motives framework. Although this self-motives framework is individualistic in perspective it was considered in relation to contextual, workplace orientated, themes. This study found that trainees who have a positive relationship with their trainer tend to have self-assessment and self-improvement motives towards seeking feedback. Trainees' feedback seeking within WBA related most strongly to motives of self-enhancement and self-verification, whereas outside of WBA trainees report self-improvement and self-assessment motives. Where trainees perceived WBA represented an opportunity for them to learn, assessment for learning, they described a self-improvement motive towards seeking feedback. Where trainees perceived WBA represented an assessment of their learning the data spoke of tensions between the motives of self-enhancement and self-improvement.

This is a novel application of a self-motives framework of feedback seeking within a medical education context. It shows that discriminating distinct motives in real world clinical settings is not always straight forwards, which highlights the importance of contextual factors on individual self-motives. This is important as it offers the opportunity to manipulate the clinical workplace in which trainees work to motivate, promote desirable self-motives in, trainees.

Trainee-trainer relationship

This study supports previous research in highlighting the importance of the trainee-trainer relationship in promoting trainee feedback seeking behaviour (66, 79, 80, 111, 147). Building on previous work this study shows that a positive trainee-trainer relationship can encourage trainees to hold self-assessment and self-improvement motives to seeking feedback in the context of WBA so they can receive accurate information about their performance with the aim of improving their clinical knowledge and skills.

This work suggests that a positive trainee trainer relationship empowers trainees to divulge their weaknesses to their trainer so that they can receive constructive informational feedback, expose the hidden area of their Johari Window, areas in which trainees know they lack knowledge but their trainers do not (178). Trainees can be motivated to engage in these open feedback interactions with a trainer they respect as a clinician (80, 82) (83), when they feel their trainer is engaged in feedback process and are willing to give their time to do so.

Feedback seeking within and outside of workplace based assessment (WBA)

This study links trainees' self-motives for seeking feedback to the context of the UK competency based assessment system, WBA. The motives of self-enhancement and self-verification relate to feedback seeking within WBA and self-assessment and self-improvement relate to seeking feedback outside of WBA. This suggests that currently WBA are linked to trainees' motivations to seek feedback to confirm their existing perceptions of their skills and promote a positive self-image of themselves to others. This is supported by review evidence suggesting that perceived task self-efficacy relates positively to feedback seeking (66). This remains at odds with a system designed to promote opportunities for trainees to gather accurate performance based feedback to guide future learning and as such we question if this assessment system is currently fit for its dual purpose.

However, these data suggest that some trainees do overcome concerns about not looking good, self-enhancement motive, to seek feedback for self-improvement motives using WBA. In these situations, trainees set specific criteria for engaging in such personally "high risk" interactions. These include perceiving that they are a junior or that they are learning a new procedure therefore expectations on their performance are low. Also in these circumstances trainees seek feedback from a trainer they trust and that trainees can maintain a degree of self-enhancement based on a number of previous positive or highly scoring WBA.

This suggests more senior trainees were less likely to seek disconfirming feedback in the context of WBA in contrast to previous research which suggests that more experienced individuals in a medical education and business setting were more confident and carried less image concerns therefore readily sought feedback (81, 165). It maybe that within the context of assessment seeking feedback for improvement and change carries higher personal costs for senior compared with junior trainees. Trainees' perceptions of the purpose of WBA as an assessment of their learning versus an opportunity for them to learn affect their motives for seeking feedback within and outside WBA.

Trainees' perceptions of WBA as for learning and of learning

Trainees' who perceived WBA represented an opportunity for them to learn describe self-improvement motives towards learning. This could either reflect their intrinsic self-motives or relate to specific contextual factors within their immediate clinical environment.

Trainees' perceptions of WBA as an assessment of learning created tensions in their motives for seeking feedback between self-improvement and self-enhancement motives.

This work shows these tensions are in part created by trainees' experiences of review panels use of their assessments as assessments of their learning. These experiences have led trainees to be cautious in divulging areas which they need to improve their performance as they are concerned about not keeping up with their peers, our data speaks of scores and colour coding, and not being perceived as good enough by review panels (ARCP). This is supported by work which suggested that the summative, check list, aspect of WBA impeded communication skills training in the postgraduate general practice and surgical workplace (75). That WBA were not effective in providing accurate information or instructive in providing appropriate feedback for change in practice. Other work has shown that in the UK only half of WBA have written feedback with informational value for change in practice (118). Trainees perceive seeking feedback for change in these circumstances potentially "high risk" and feedback they do seek may lack the informational value to guide change in their practice.

Limitations

In applying this self-motives framework of feedback seeking to these data it was apparent that in some instances it was difficult to discriminate distinct self-motives. This was most apparent when trying to distinguish the motives of self-assessment from self-improvement and self-enhancement from self-verification. It maybe that the sharp definitions from experimental settings become blurred within a practice context. Secondly, we felt it was important not to consider self-motives independently but that the context of the clinical workplace in which feedback interactions take place is of paramount importance. Finally, only a single researcher applied the framework to the complete data set.

Practical application

Self-motives in part contribute towards trainees' decision making around when, how and with whom they seek feedback. To foster desirable self-motives in trainees' educators should support trainees in seeking feedback which carries accurate informational value which they can use to change their subsequent clinical practice. Such feedback should be given in a clinical environment where disclosure of deficiencies is perceived as an acceptable part of professional practice. Furthermore, clarification of the primary purpose of WBA is required to support this. Consideration should be made to separating the "for learning" versus "of learning" roles of WBA and to interrogate the ways in which ARCP panels use and interpret WBA information and messages intentional or otherwise this conveys to trainees.

Conclusions

This study shows that surgical trainees' motivations for seeking feedback can be explained using a conceptual self-motives model of feedback seeking behaviour.

Trainees self-motives for seeking feedback relate to contextual factors; their perceptions of the trainee-trainer relationship, how they choose to seek feedback within and outside of WBA and their perceptions of the primary purpose of WBA.

Trainees need to be motivated to seek accurate informational feedback so they can improve their performance within the clinical workplace. To achieve this trainees' need training and encouragement to seek and receive specific performance based feedback and current assessment systems must change to allow trainees to seek such feedback without fear and concern about this information being used as an assessment of their learning.

7. Qualitative; Trainer perspectives on feedback and WBA in the surgical workplace; *“a bit of honest feedback” v “playing the game”*.

Research Question. How do trainers’ perceptions of WBA as an assessment for, and of learning, affect how they engage in feedback interactions with trainees in clinical workplace?

OUTCOMES

- 1) The culture of WBA, the purpose of WBA as an assessment for learning and of learning, how WBA are used (properly v playing the game) and the trainer – trainee relationship are all interwoven factors in how trainers choose to use WBA within the clinical workplace.
 - 2) The ways in which trainers use WBA relate to trainees use of WBA through “playing the game” and this can be at odds with trainers’ desire to provide “honest” feedback to trainees.
 - 3) Trainers concerns about maintaining an educational relationship with trainees can temper their ability and wishes in providing “honest” or critical feedback to trainees.
-

Introduction

This section focuses on the role the trainer plays in feedback interactions with trainees in the context of workplace based assessment (WBA). It is important to consider feedback interactions within this context of WBA as they represent a definite point where feedback interactions should occur. A major driver in the development of competency based models of postgraduate training was the desire to promote opportunities for formative feedback for trainees in the workplace (12). So how do WBA impact on feedback interactions from the trainers’ perspective?

The role trainers play in engaging in feedback interactions with their trainees was eloquently described by research undertaken exploring trainers use of mini-CEX in an experimental setting.

“Moving from observation to judgement to rating to feedback is a complex and interdependent process in which expectations of how feedback will play out, for both the resident and the faculty member, influence faculty ratings .”(72).

This describes the milieu where trainers are actively engaged in the observation and interpretation of trainee performance. They then act to engage in feedback interactions with trainees to deliver or communicate their feedback message. Trainers’ behaviour in the provision of feedback reportedly relates to internal trainer factors, trainee factors and organisational or cultural factors (69). These areas of feedback provision will now be discussed in turn.

1) Observation and interpretation of trainee performance

i) Purpose and focus of observation

The purpose, reason why the observation was been undertaken, affects trainers interpretation of trainees performance (64). In the context of WBA research suggests that trainers perceive WBA as a useful innovation which contribute to learning however this usefulness may be perceived in theory rather than in their practical application (179). This may explain why in very small UK studies, less than 40 trainers suggested that they perceived WBA did not help trainees learn (180, 181). Additionally research suggests that conflicts of interest can arise between trainers’ perceptions of the purpose of WBA to provide feedback to students, as opposed to institutional use of WBA as an assessment of learning (182). This is consistent with reported scepticism about the use of WBA when trainers feel an obligation to trainees and using WBA when it is convenient (179). As reported in section 4, large scale quantitative work has shown that trainers perceive WBA represent an assessment of trainees learning compared to an assessment for learning. However trainers perceived WBA had greater benefit for learning compared to trainees (116).

The focus of observation, what feedback is being provided in relation to, whether this feedback relates to direct observation, video recorded or other sources and the standard used for observation also affect trainers interpretation of trainee performance (64).

ii) Nature of instrument and assessment methods used

Faculty training in the use of instruments and assessment methods improves the quality of task observation (183) and rater accuracy (184). Within a medical context rater training has had varied outcomes with one study reporting improved trainer comfort with observation and improved stringency of rating behaviour (185), in contrast no effect of training was seen in another small randomised controlled trial (186).

Though WBA offer the opportunity to assess the professional skills of trainees within an authentic practice setting (11) the implementation of WBA systems has been far from smooth (126). The utility of WBA has been subject to many literature reviews. Despite evidence for the validity and reliability of WBA (86, 87), in some settings the perceived educational benefits of WBA in the provision of feedback to trainees (123) still lacks an evidence base (187). This has led some authors to suggest that in attempting to assess individual trainee's performance we have failed to capture the complexity of the workplace in which trainees and trainers interact and work (126).

iii) scoring or rating trainees performance

Trainers vary widely in their rating of trainees (188) which has led to an exploration of the processes by which trainers engage in rating trainees. In experimental settings where trainers rated "trainees" using mini-CEX rater cognitions were either fixed (age, gender, clinical competence) (125) or flexible (frames of reference and inference) (72).

With respect to fixed cognitions age and gender do not appear to impact on trainer ratings but clinical competence, reported with standardised patients in an experimental setting, may do. Trainers with better clinical skills themselves being more stringent in their rating of trainees (125). This work suggested clinical competence was more important than experience however other studies suggest that “experts” rate trainees differently from less experienced trainers. Experts use situational cues and interpretations more than literal observations when rating trainees (128). This is supported by a systematic review suggesting trainers who are more familiar with a task lead to greater rater agreement (64).

Trainers also rate trainees’ performance based on flexible factors. Firstly trainers judge trainee’s performance based on their perceptions of their own performance, perceptions of other trainee’s performance at the same level of training and what they perceive to be an acceptable standard of patient care (72). Trainers infer meaning from the actions of trainees and make assumptions so they can rate trainees. Finally trainers are required to translate their judgement about a trainee’s performance into some form of numerical, check list, scale (72).

Trainers’ feedback providing behaviour undoubtedly plays a role in their feedback interactions with trainees. A single study suggests that trainers’ achievement orientation, for learning or to look good affects their perceptions of WBA. Trainers who have a performance goal orientation (the desire to prove one’s competence and gain favourable judgements and avoid negative judgements) may prefer WBA to represent a pass or fail scenario. Whereas those with a learning or mastery orientation (the desire to develop the self by acquiring new skills, mastering new situations and improving one’s competence) may be more interested in the use of WBA as a source of formative feedback to help trainees to learn (71). Trainers who perceive that it is their responsibility to provide good feedback and have concerns about letting trainees engage in unsupervised clinical practice,

undertake feedback frequently which is of a high quality (74). Though these are interesting findings this study had a very low response rate, 34% as trainer and trainee paired data was considered as the single unit of analysis.

The complex relationship between trainers' clinical experience and expertise, frames of reference and inference, translation of judgements of performance to numbers and their own personal behaviours and attitudes may in part explain why the process of observation and interpretation of trainees' performance leads to such variable "rating" outcomes. This variability inherent to trainer ratings has led researchers to suggest that we should no longer consider trainers as trainable (behavioural theory), or fallible (social psychology) and consider that they rate trainees differently due to their lived experience based interpretations of trainees behaviour (sociocultural learning theory) (189).

2) Communication of the feedback message with trainees

Traditional definitions of feedback in the medical education literature describe a transmission of information from feedback provider to recipient (58). However others suggest that trainees play a more active role in feedback and consequently feedback should be considered a two way communication of information (60). This need for change in feedback sentiment is apparent in the literature. Research suggests trainers' delivery of feedback is either directive, focusing on delivery of information, or elaborative, a dialogue involving questioning the trainee. Even when trainers engaged in elaborative feedback in experimental settings the feedback provided was unrelated to trainees' self-assessment (70). Faculty centred feedback was also evident in a study of trainees experiences in using mini-CEX in the context of communication skills training where, when there was no association between trainee goals and feedback comments. Furthermore, mini-CEX were not useful in improving trainees communication skills in a practice setting (75). In

comparison to other professions trainers in medicine tend not to develop clear action plans for trainee change as a result of observation and feedback (83).

In order to communicate feedback for change trainers must represent a credible source of feedback to trainees (54, 71, 81, 190) and trainers engagement, in terms of providing their time and narrative feedback, is important to trainees (191).

a) trainers' perceptions of trainees

Research suggests that trainers find it easier to engage in feedback interactions with trainees when trainees had insight into their own strengths and weaknesses (70). Trainers also described that trainees should be self-motivating and take ownership of their training (71). Interestingly trainees perceive trainers should also be responsible for training particularly in the context of WBA (149).

b) trainer-trainee relationship

For trainers, the trainer-trainee relationship can be one of the most important factors impacting on their approach to feedback. Research suggests where trainers had the opportunity to build relationships with trainees, in so developing trust and rapport, trainers felt more comfortable providing feedback to trainees (70), this was also apparent in the workplace setting (75).

By creating a supportive environment trainers play a significant role in enabling trainees to seek feedback in a safe setting (69, 79, 147). This perceived safety and trust can increase trainees subsequent confidence and performance (64). Trainers had expressed concerns about damaging this relationship by providing genuine feedback (76) and any adverse effects this could have on trainee wellbeing and self-esteem (69, 73).

c) tension caused between maintaining an educational relationship and scoring trainees

Within the context of WBA trainers have a dual role in the provision of performance feedback and assessing trainees' behaviour. This dual role can be a source of tension for

trainers wanting to maintain a positive educational relationship and providing critical performance assessment. In some circumstances this leads trainers to emphasise positive feedback to maximise trainee confidence, receptivity and trust (70, 182). Trainers also report feeling good when they told a trainee they did something well and feeling mean when they gave negative feedback (70).

Norcini suggested that WBA may offer trainers a set of clearly defined criteria by which they can judge trainees performance (123). However evidence from trainer training interventions suggests that trainers discomfort in providing low ratings are a barrier to effective utilisation of WBA (192). With some studies suggesting trainers prefer not to document negative feedback in the context of WBA for fear of damaging trainees ego or image (69). This is supported by a literature review suggesting that trainers professional and personal factors, including a sense of failure and guilt, can lead trainers not to fail failing trainees (193). Trainers are also wary of failing trainees due to potential personal costs in terms of time, paperwork and justification of their decision making (73).

3) Contextual factors

The clinical workplace means trainers have to balance training and feedback with service commitments and often minimal academic and financial recompense (73). There remains a need to develop a culture of feedback within medicine which creates conditions and opportunities for feedback and learning (78).

In summary, the literature relating to trainers' provision of feedback highlights that trainers engage in complex processes to rate trainees' performance. In communicating a feedback message trainer and trainee goals for feedback differ, the trainer-trainee relationship is important to trainers with evidence suggesting that trainers' dual role in the provision of feedback and as an assessor can be a source of tension and confusion. The literature to date has not explored how trainers' perceptions of workplace assessment (WBA) and their

use as an assessment for learning, and of learning, has affected trainers' feedback behaviours and interactions with trainees within the clinical workplace.

Unresolved issues from quantitative data analysis

Quantitative data analysis from section 3 suggests that trainees and trainers perceive WBA represent an assessment of learning rather than for learning (116). There is discrepancy between perceptions of feedback provision and receipt, whereby trainers think they give feedback, and trainees don't think they receive it. Further discrepancies are apparent between trainers' and trainees' perceptions around the time spent engaging in feedback interactions and results in section 3 suggest that over one in five WBA were completed at least a week after the observation of practice.

The gaps in the research literature and unanswered questions from the quantitative arm of my research have informed the following research questions.

RQ: How do trainers' perceptions of WBA as an assessment for, and of learning, affect how they engage in feedback interactions with trainees in clinical workplace?

Methods

In order to answer the research question set a qualitative methodological approach is required. This will allow a rich exploration of the data and attempt to answer those questions created by the quantitative phase of the data collection and analysis. By adopting a pragmatic stance (96), the quantitative findings from previous sections, 3, can inform inquiry by guiding the collection of qualitative data (109). This stance supports an intersubjective relationship with the research process and allows exploration of individuals perceived lived reality (109).

A template analysis approach to this data enables a structured way of examining the perspectives of different trainer groups simultaneously (150). Template analysis allows integration of key quantitative findings, through the use of a small number of a-priori themes, without limiting the analysis to these themes. In considering the participants responses completely rather than fragmenting the data allows me to offer a “rich” description of the data (151).

Setting

We sought a representative sample of trainers from a variety of small and large district general hospitals in a single region of the UK. I was unable to access trainers from outside of this region due to a variety of logistical factors. Some of the trainers who participated were also involved at a regional level as participants in ARCP, review board panels, and therefore had a depth of understanding about the dual roles of WBA as for learning and of learning.

Participants

Eligible participants included general surgical trainers, consultants and associate specialists, non-training grade specialists, who complete WBA using the Intercollegiate Surgical Curriculum Programme (ISCP), the competency based curriculum and assessment system for UK postgraduate surgical training (4). Participant demographics are in the table below

(table 13). For trainees' progression in training is determined by a successful outcome at ARCP of which the mandatory completion of WBA are a part. Minimum required numbers of WBA, 40 to 80 in total, being regionally set by deaneries or local higher surgical training committees.

A local project investigator arranged focus group meetings and all general surgical trainers working within that unit were invited. Trainers who agreed to participate in the study were included within focus groups. Prior to meetings potential participants were given written information and completed a consent form.

Table 13. Trainer Focus Group participant demographics

	Male	Female	Consult <5 yrs	Consult 5 – 10yrs	Consult >10 yrs
1	0	2		2	
2	4	0			4
B	3	0	1		2
C	6	0	1		5
D	2	0	1	1	
F	3	2		3	2

Interviews

Focus groups represent an appropriate method of data collection for this exploratory study (99). They offer the advantage of being able to collect a range of data from different individuals at the same time. Participants can be stimulated to speak based on the comments of others and those reluctant to engage in an individual interview maybe encouraged to participate. Groups can also act as checks against extreme views (153). The main disadvantages to this approach are dealing with dominant individuals and internal power dynamics within the units where focus groups were undertaken. Focus groups were undertaken between September 2012 and July 2013. The focus group guide was developed using the research questions and key unanswered issues from my previous quantitative findings.

Focus groups were all conducted by the primary researcher (AG) and lasted between 30 – 60 minutes. All groups were convened within individual surgical departments within hospitals. Focus groups were audio recorded using an MP3 player, then transcribed and anonymised with individual and location specific information being removed.

Analysis

Interviews were transcribed verbatim by the primary researcher (AG). A second researcher (DM) thoroughly read and re-read two transcripts (FG B, F). The two researchers (AG, DM) independently coded the first two transcripts and subsequently discussed their initial coding. Where initial codes fitted within an a-priori theme this was used, and if not additional new themes were agreed and developed. The initial coding scheme derived from each text was discussed until consensus was reached. These initial themes were organised into a diagrammatic template and then linked into broader overarching themes. This template was utilised to analyse further data (AG). Data analysis was iterative and any material which did not fit within the thematic template was, after discussion between these two researchers and a third researcher (TP), incorporated through the development of additional themes. The final template with supporting quotes from the data was agreed by the 3 researchers

Five a-priori themes from my previous quantitative data analysis (section 3) were identified to initiate exploration of these data: assessment for learning, assessment of learning, feedback, time, trainee (table 14).

Table 14. A-priori themes based on initial quantitative trainer analysis.

Questions	A-priori codes
1) Why do trainers perceive WBA represent an assessment of learning?	Assessment of learning
2) Why do trainers believe WBA represent an opportunity for learning (assessment for learning) more than trainees?	Assessment for learning
3) Why do trainers feel they give feedback to trainees but trainees don't receive it?	Feedback (does this mean the same thing to the same groups do they have different definitions therefore different perceptions of!!)
4) How do trainers' perceptions of the time spent giving and receiving feedback and limitations on time affect their use of WBA	time
5) How do trainers' perceptions of the trainee impact on their use of WBA (relationship)	trainee

Focus group data was collected until saturation. Saturation was determined when no new material emerged from analysis of the final two focus groups.

In being reflexive the two researchers who coded the data were mindful of their relative positions as a trainee and a trainer. The three researchers were conscious that their roles as a trainee and trainer may bring different perspectives to the analysis and that by open discussion of coding any differences in perceptions and meanings could be balanced out. The primary researcher (AG) was also concerned that having worked as a trainee in several of the units where trainer focus groups took place may impede their ability to moderate focus groups effectively. However, this was not the case and groups ran relatively smoothly. The researchers were also mindful to avoid bias by trying to avoid preconceptions towards these data as result of conducting the trainee analyses.

Results

The initial codes from the first stage of qualitative data analysis are displayed in the following (figures 27, 28) from researcher 1 and 2.

Figure 27. Researcher 1; Results of open coding

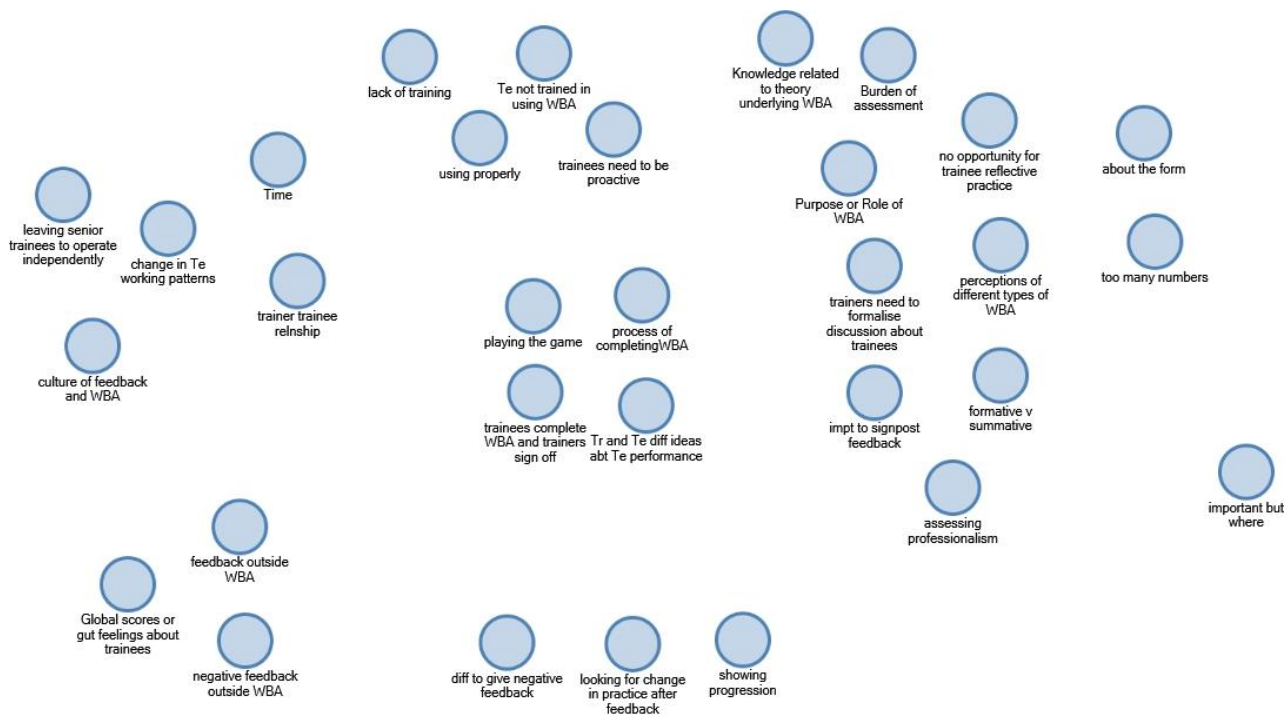


Figure 28. Researcher 2; Results of open coding

- Contemporaneous use of WBA
- WBA as a tool for feedback
- WBA as a summative tool
- Trainees gaming with WBA
- Informal feedback separate from WBA
- Reticence about giving open feedback
- Professional issues with WBA
- Lack of training for trainers
- Lack of training for trainees

These initial codes were then linked together to create higher order themes (figure 29). The following table also shows more clearly the subthemes in relation to each overall theme (Table 15). After agreement was reached by all three researchers the final table of themes was developed (Table 16). Many trainers spoke about using WBA “properly” this will be defined in the results section. Here it reflects a commonly stated phrase with no value judgement attached.

Figure 29. Trainer analysis; linking of open coding to create higher order themes

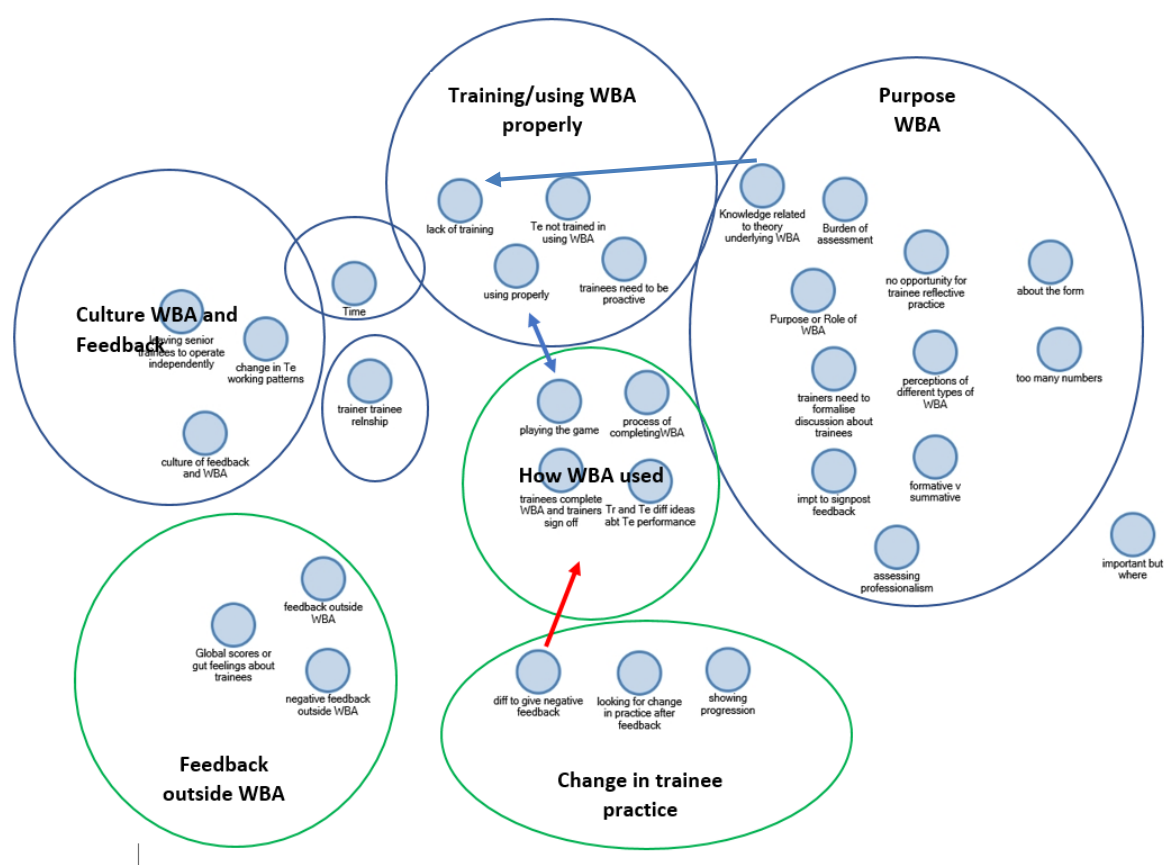


Table 15. Table of themes generated from open codes

Purpose of WBA	Using WBA properly	Culture WBA and feedback	Trainer-trainee relationship	How WBA used	Change in trainee practice	Feedback outside WBA
Numbers drive summative aspect/focus	Trainees need to be proactive	Cultural change	Important particularly for delivery of honest feedback	Mixed opinion about giving “honest” feedback	Looking for change in trainee practice	Honest feedback outside WBA
Testing for organisational skills of trainee (but still worthwhile to test)	Using properly appropriate time after WBA	Challenge by registrars	Difficult to receive requests from unknown team on call	Playing the game by trainees	Showing progression	Global scores and gut feeling
Assessment – work well as an assessment given fragmented training/not great but best we have	Unease about delayed feedback			Mismatch of trainer-trainee perceptions		
Prompt for feedback discussions	Difficult to discuss delayed					
Evidence for training/feedback and ARCP’s	Best straight after WBA					
ID areas for trainee focus/improvement						

Table 16. Major themes agreed by the three researchers

1) Purpose of WBA

- A) assessment for learning (as a formative tool)**
- B) assessment of learning (as a summative tool)**
- C) as a test of organisational skills**

2) Using WBA properly (within the context of time = timing of WBA and time for training)

- A) Trainees need to be proactive**
- B) Quality/Accuracy of feedback provision using WBA**
 - i) Contemporaneous use**
 - ii) Delayed use**
- C) Training required (trainer and trainee)**

3) Trainer – Trainee relationship

4) Culture of WBA and feedback

5) How WBA are used (relates to using properly and purpose of WBA)

- A) Trainees playing the game**
- B) Trainers delivery of “honest” feedback**
- C) Mismatch in perceptions of trainee performance**
- D) WBA used as a global assessment**

6) WBA and Change in trainee practice

7) Feedback outside WBA

8) Context of feedback (clinical workplace)

- A) change in trainee working hours/arrangements**

Themes

Several major themes emerged after exploration of these qualitative data (Table 16). These themes include the purpose of WBA, using WBA “properly”, trainee-trainer relationship and culture of WBA and feedback. These themes influence How WBA are used, WBA and change in practice and feedback outside WBA. These themes are situated within the context of clinical environment.

1) Purpose of WBA

Trainers discussed their perceptions of the purpose of WBA. Some trainers’ spoke of their use of WBA as an assessment for learning. They described that WBA gave them the opportunity to sit with a trainee and engage in feedback interactions. Trainers also commented that they found the structure of WBA useful in guiding their feedback to trainees. Trainers also spoke about their perceptions of WBA as an assessment of what trainees had learnt.

A) assessment for learning

“It is a tool for making sure that constructive feedback occurs. It is an aide memoire really.”

[FGB]

“it’s a good way of documenting that you have chatted. That you have discussed cases and that ... you and your registrar both have a focus for training and what is missing in training going forwards.” [C.5]

WBA also helped trainers structure their feedback to trainees.

“If you look at the PBA’s It does remind us a lot of things. Those forms are pretty extensive. Then we have to go to each step” [2.2].

“P2: I like the structure but at least you can say:

what about this? what about that? and what about the other?” [F.4]

Some trainers valued the framework WBA offered as it enabled them to structure their approach to feedback with poorly performing trainees.

"I think for a difficult trainee it is helpful... Because it gives you the structure to say actually that (difficult?) bit" [F]

B) assessment of learning

"I think we are doing both now. Ticking boxes just for the ARCP's sake and then to prepare surgeons with oral feedback and on table (at the operating table) constant discussions"
[2.1]

"I am not sure if there is any assessment done of the quality of each one rather than just the fact that it has been done. How many that have no comment on them at all...And they have just clicked the box to get them ticked

P3: Because in the ARCPs you can't look through 48" [F.8].

Some trainers also seemed a little confused about the actual role of WBA as an assessment for, or of learning.

"they are not meant to be summative are they are meant to be formative .. so you shouldn't be looking at this as a .. assessment [F]."

C) as a test of organisational skills

Some trainers felt that that WBA played a role in assessing the organisational skills of trainees. Whilst this was not one of their intended roles some trainers perceived that testing trainees organisational and administrative skills was worthwhile as it was a marker of their preparedness for the administrative side of their future role as a consultant.

"Because they are disorganised. ... I mean X would send me things after every single theatre list because X was very organised" [F.1]

2) Using WBA properly (within the context of time, timing of WBA and time for training)

Many trainers discussed ideas around using WBA properly. This relates to context of timing of WBA and making time for training. This was captured succinctly by one trainer.

“my feeling is that they need to be filled in properly i.e. honestly. It needs to be done at an appropriate time i.e. immediately after the training episode and the feedback needs to be honest and it needs to be agreed by both. And used to then move onto further training episodes. You know - identify training needs. That’s what I think it’s for ... it’s not a stick it’s a tool for training.” [D.2].

Other trainers were not so articulate in their explanation of using WBA properly.

“Ok if you are doing Lap Choley fine .. I will be able to sign off the form but if you were doing an aneurysm you wouldn’t be in the mood to sign the form next ten minutes isn’t it. Probably they will have to send the form next day or the following day. Maybe not two months later” [2]

A) Trainees need to be proactive

Trainers described that they thought that trainees need to be proactive in seeking feedback. Trainers suggest that if trainees are proactive in seeking feedback using WBA then trainers find it hard to refuse this.

“If they grab me and say do this at the end of the case, then I don’t mind. But they have to grab me and most of the time it is 5 - 10 minutes, you can do that over a coffee ... which you are doing anyway” [F].

However, trainers are aware that trainees are sometimes not pro-active in seeking feedback as they are worried about the possible outcomes of feedback.

“the problem with that of course is that you can cherry pick your PBA’s and again if you are worried about things.” [D.1]

B) Quality/Accuracy of feedback provision using WBA

i) Contemporaneous use

Contemporaneous use of WBA allows trainers the opportunity to provide accurate feedback and so fulfil their purpose as an assessment for learning.

“I 100% sit down with them (at the time). I always sit down otherwise I find it is just meaningless” [F.1].

“if you have to sit down with a PBA you can sit down and identify the points. Which is why it needs to be done at the time instead of sending me an email a week later.” [D.3]

“Because you know that’s the time when the operation was fresh in your mind. There may be a nuance you will miss if you do it two or three days or a week later.” [C.5]

“...if you can’t remember specific cases unless as you say earlier on right I want this to be a PBA. I want this to be a procedure assessment on this gallbladder I am doing or hernia then we are all switched on to it and ideally you do it within a short time frame of it been done when everyone remembers it.” [D]

ii) Delayed use

Whereas other trainers described that they often received requests for WBA sometime after they had performed a theatre case or worked with a trainee. Trainers also described receiving requests to complete WBA when they were unaware that they had been undertaking a WBA when they had been involved in managing a patient case with a trainee. When completing WBA after a time delay trainers report being more likely to provide global as opposed to specific feedback.

"P1: I think it is very variable because some of the time you haven't been aware that you were doing a WBA at all and this ticket mysteriously arrives in your inbox saying you have a CBD to complete for trainee whoever and you are not even sure which patient it was about really and you don't remember a particularly meaningful encounter but you feel very mean if then you don't do it" [Int1.2]

"I think the main problem for me with them is that we don't do them in real time after the event. It gets sent sometime afterwards. Sometimes I don't know that the registrar wants assessing on a particular thing and then 2, 3 weeks later or even longer 2, 3 months later I get one coming through saying remember the anterior resection we did together Could you fill this out for me and that's the problem." [B.1]

"I think the forms must be submitted within 5 days, 5 working days. I have had them 4, 3 weeks later and I don't know what they pertain to so I have said I am not doing it." [B.2]

Some trainers did admit that they also played a role in delayed completion of WBA electronically.

"we want to blame trainees every trainee does try they say I am sorry yeh I am tired today a long list so this is how the conversation goes on. It is not all the time the trainees." [2]

"I do it within a week. I don't do them within the same day because I can't really get time with the trainee on the same day. There's not time at the end of an all day theatre session I'm not going to sit down and fill forms at six o'clock in the evening." [C.3].

C) Training required (trainer and trainee)

Trainers stated that they felt both themselves and trainees probably required additional training in using WBA.

"Basically, the much bigger fundamental problem with this ISCP is that nobody has been trained how to fill in ISCP. Not the trainees or clinical or educational supervisors." [B]

"I remember going on a training programme for this probably about 5 or 6 years ago, at the Deanery. Sadly, I can't remember too much about the training hence my confusion in which bits of the form are filled in by the trainer and which bits are filled in by the trainee" [B]

3) Trainer – Trainee relationship

Trainers described that they felt the relationships they had with trainees were important for having honest and open feedback discussions.

*"You can't really be a bull in a china shop and as you go on you get to know (them). I find it easier you know if I know someone to say that was [****] wasn't it? And they go" Yeh". Because they know you and they trust you and they sort of say that was **** because we all have good days and bad days" [F.13].*

Trainers are aware that they develop different relationships with different trainees and therefore it is good for trainees to have exposure to different consultants to gather assessments from different people

"We won't all view them in the same manner. You know like X and I may see somebody and X might think they are brilliant and I may not or the other way round. You know what I mean and actually it is important they have those assessments from multiple people

P1: And you may well view them very differently after 12 months than you do after 3" [F.2]

Sometimes trainers expressed concerns that the trainer-trainee relationship could be a disincentive to providing "honest" feedback

"Well these are your registrars you often form a good rapport they work hard for you in other ways and sometimes .. you don't want them brought down on the basis of one operation that might not have been done so well and it maybe that they have lots of other operations that went pretty well" [B.1]

4) Culture of WBA and feedback

Trainers spoke about how cultural change was in the process of occurring in surgical training. They also described that they felt that trainees were more likely to challenge their trainer, i.e. themselves, in relation to performance assessments and that WBA could be used as protection or evidence in these encounters.

“I think there is a difference as well with the culture. It takes a long time to change the culture but I think once that’s more into the culture within the system then it will become a lot easier to get them [WBA] done.” [D.2]

Culture also impinged upon approaches to difficult or poorly performing trainees,

“There isn’t a culture of constructive criticism yet within surgical training its coming but it’s not there yet. And I err think you also get a bolshy trainee who will say , “ well what’s your evidence for saying that” and I am afraid I think it is difficult to collect the evidence. [B.3]

5) How WBA are used (relates to using properly and purpose of WBA)

Trainers’ suggested they engaged in using WBA in a variety of ways in different circumstances. Trainers described their experiences where they felt trainees were completing WBA to “play the game”. Alternatively, in different feedback encounters trainers tried to use WBA to provide trainees with “honest” or constructive feedback about their performance. Trainers also commented on situations where there was a mismatch in trainees’ perceptions of their clinical performance and trainers’ perceptions based on their observations of trainees practice.

A) Trainees playing the game

Trainers are aware that trainees use of WBA is strategic and many trainees are “playing the game”. Trainees are actively seeking feedback and WBA after they perceive they have

performed a task well. Trainers can also be complicit in playing the game by not wanting to put “honest” or negative comments on trainees WBA.

“the problem is at the moment errm they are so sporadic and they are only sending it when they think they have done something well so you have selected good stuff.” [B]

“I do sometimes get registrars sending bad ones or things they have done badly they think and I ask them why have you sent this one and they say so that I can show that I have progressed later on” [B.2].

Trainers perceptions of trainees playing the game are linked to their perceptions of using WBA properly, contemporaneously.

“Quite useful for assessing progress but they need to be done properly not you know being abused by people who are .. you know the problem is whenever you give a target to a doctor or a medical student they hit the target and do no more and then coast and that is human nature. There’s a big difference and I think they are quite useful for assessing how people are getting on.” [D.1]

Trainers perceptions of trainees playing the game are also linked to trainers’ perceptions of WBA as an assessment of trainees learning. Trainers perceptions that trainees have to “tick the boxes” to complete WBA is related to review panels use of WBA as a counting exercise in which some trainers are panel members.

“It does make it almost a counting exercise” [F]

“Workplace based assessments for every trainee. I mean I know sometimes you don’t pick any do you. You just say they have done 58 we haven’t looked back at them (In the ARCP).

Trainers are also aware of trainees’ concerns about the possible outcomes of feedback particularly within the context of WBA.

"P2: I think the point that Mr X made about cherry picking your PBA's may be relevant. Say perhaps that's one reason why people don't ask before the case, can we do a PBA on this case

P1: In case it doesn't go so well" [D]

B) Trainers delivery of "honest" feedback

Trainers discussed their feelings about providing trainees with honest feedback. Some trainers appear to be comfortable in providing accurate performance feedback to their trainees whereas others were reticent to engage in providing difficult feedback which had information for change in trainee practice. Trainers also discussed why they were reluctant to engage in what some of them described as difficult feedback encounters with trainees.

"everybody knows ... they are professionals and as you learn mistakes do happen" [2.1].

"Perhaps it's not right to give them a lot of heavy criticism but errm if things have gone well then it is always very important to say what they have done well. Because more often than not they do more well than they do less well." [B.3]

"I think some of us are probably better than others at dealing with poor performing trainees. I don't think it is easy I don't think you are ever taught to do. It is the same as dealing with difficult colleagues and patients. It can potentially be confrontational and I think some trainees these days actually I wouldn't say argue back but challenge what you say." [F12]

"But I think the problem is the competitive nature of surgery is such that people are afraid of having weakness demonstrated to them" [D]

C) mismatch in perceptions of trainee performance

Trainers described when they had faced difficult situations where they had attempted to engage in feedback interactions with trainees where they felt that trainees had little insight into their skills.

"P3: I just find it very hard if they have no or very little insight and they are giving themselves very high scores and then all of a sudden to get an email back saying you have gone from very high scores to lots of reds and needs room for improvement without been discussed." [F.3].

"Frequently I have had a trainee who thinks they are good at something and I have had to say no change it to an amber or a red. And write comments although they have written comments in. Sometimes they have been quite perceptive the comments." [B.1]

"P1: Well from my experience of these I find that the junior trainees mark them as the one that's not quite ready for completion and all the senior trainees mark themselves as ready for completion you know and it is very difficult once they have filled it out to tell a senior trainee that you are not ready for completion. Just on the basis of one operation." [B.2]

D) WBA used as a Global Assessment

Some trainers detailed that their use of WBA represented a global assessment of their trainee rather than a specific performance assessment.

... it just seems a bit of a game the whole thing really. It's er I think there is no substitute for a global sort of score a global feeling about a trainee." [B]

"P2: It is entirely possible you can be great on the ISCP website and you could be a total psychopath..."

P2: We have all worked with them, you know" [F.3].

"Slightly old style where you observe them for six months and then you give an opinion on whether yes x can do this procedure" [2].

"It has no validity in terms of an official assessment but we all know that when we have been working with somebody for 6 or 7 months even without this type of assessment we still get a very good impression of how good somebody is. I guess it is translating that down to the screen" [F].

6) WBA and Change in trainee practice

Trainers had mixed experiences of using WBA to show or chart change in practice or chart progression in training. Trainers described this depended on the attitudes of trainees towards feedback and WBA.

"P5; It does fall down to individual personalities as whose become better equipped at either receiving criticism and using it constructively and others ... take it as a personal sort of [slight]" [D].

"The person involved was brave enough to say do you think I could have done better, How could I have done that differently and you know we were able to give constructive ... you know so actually hopefully that individual will have taken away something from it rather than thinking it didn't go very well and the boss doesn't think much of me" [D].

Occasionally trainers had experiences where trainees regularly undertook WBA in relation to the same procedure over a length of time working together and this allowed them the chance to demonstrate trainees progression in their clinical skills.

"one trainee he started to develop lap choley (Operation to remove Gallbladder) with me it was the first time. The first form just a very beginning and you can see the progression of his lap choley so I have done about 5 or 6 forms for him. The last few forms he has done it himself but I just countersigned it nicely. You can see the progression so it's a good thing" [2.2].

However, some trainers found it was difficult to use WBA to show development or progression by trainees as there was a huge variation in practice in development required until trainees reached the end point of completion of training (CCT).

*“There is ****, needs development, fit for CCT and that’s it. And that’s the width and you know in my personal view unless you are a real high flier everything is going to be orange until you hit your final two years because it has to be because you can’t. Otherwise the last two years are pointless” [D.2].*

7) Feedback outside WBA

Some trainers also described the importance of informal feedback encounters with trainees outside of the WBA system with trainers suggesting that informal feedback can sometimes not be recognised as feedback by trainees.

“I think what is important is that you have a chat with a trainee and I think it is very important and it’s the same as giving feedback to juniors they don’t know they are having feedback unless you say “I am now going to provide you with some feedback” and that’s what you have to say” [B].

“But also I think as well if you have been feeding back to them all the way through the surgical procedure which is what we should be doing all of the time”

8) Context of feedback (clinical workplace)

Trainers spoke about the busy clinical dynamic in which they undertook WBA with trainees and the tensions this placed on them and their abilities to use WBA “properly”.

“But we have all got a million and one things on our mind, how the list running and can I get this last one done and all this stuff and that’s the reality of it. So probably we are going to

make work for ourselves because if I say let's make this a PBA, I am thinking I have got to go through it with you, and I have got far too much on the list and what am I going to do" [D].

In Summary

It is apparent that from the trainers' perspective the culture of WBA, the purpose of WBA as an assessment for learning and of learning, how WBA are used (properly v playing the game) and the trainer – trainee relationship are all interwoven factors in how trainers choose to use WBA within the clinical workplace. These themes inter-relate differently in different situations with different trainees. In some instances, trainees are proactive in seeking feedback and this helps trainers to deliver effective performance feedback. However, in other situations trainers are anxious about damaging their relationship with their trainee and so avoid or have difficulty in providing feedback which trainees can use to change their practice. This is exemplified within the following figures 30 and 31. Initially it was conceptualised that context and time were factors within which the dynamic process of using WBA sits however we felt that this use of WBA occurred within the context of time and the clinical workplace more comfortably.

Figure 30. Initial model of how WBA are used by trainers in the clinical workplace

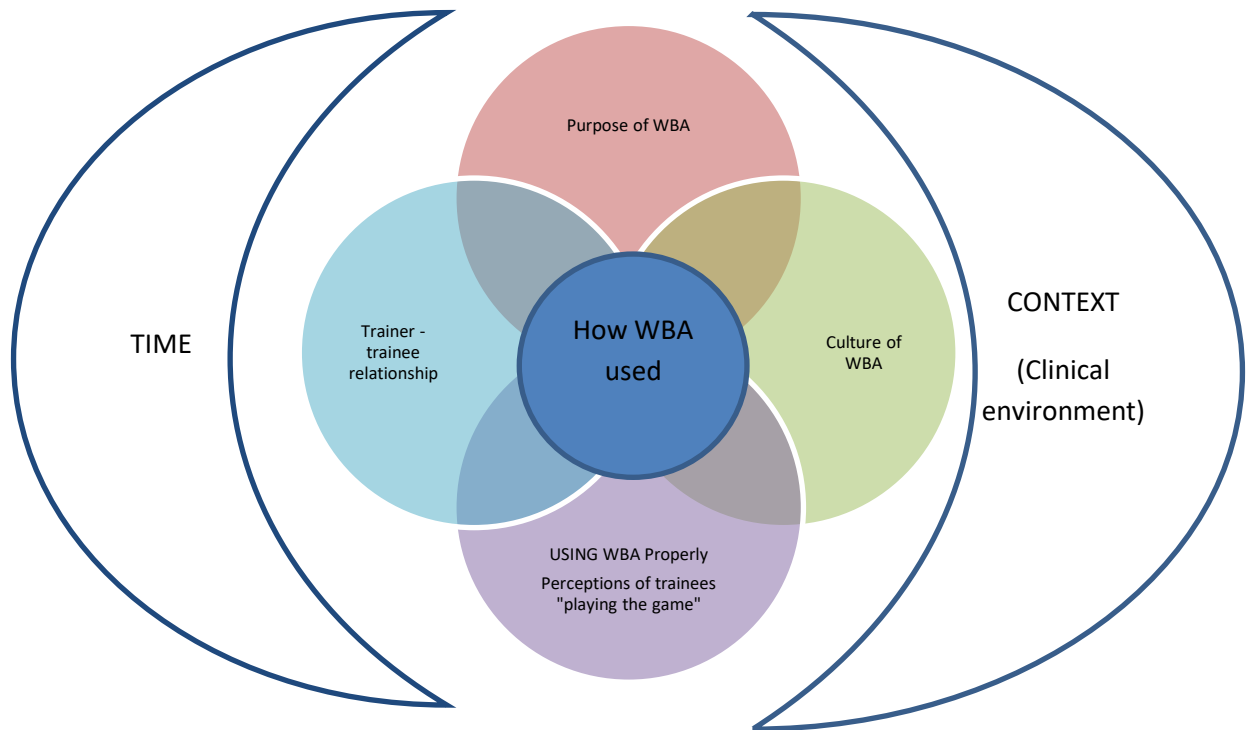
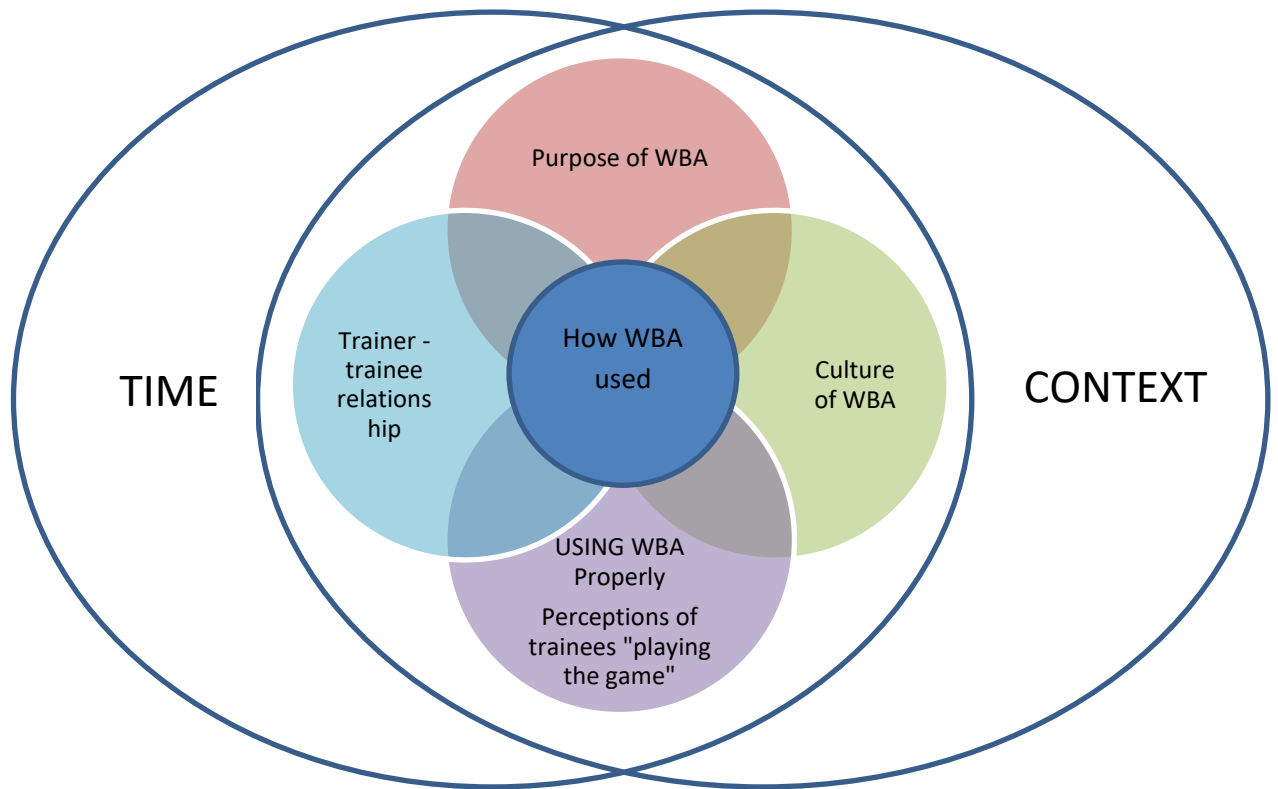


Figure 31. How WBA are operationalised by trainers within the context of clinical environment and time.



Discussion

What has this study found

How WBA are used by trainers depends on a combination of trainers' perceptions of the purpose of WBA, their perceptions of "using WBA properly", the relationship with their trainees and perceptions of the culture of feedback. These themes are embedded within the constructs of time and the clinical workplace. Trainers describe that WBA can be used to provide trainees with "honest" feedback. Trainers also perceive that trainees use WBA to "play the game" and seek positive feedback after they think they have performed clinical tasks well. Interestingly there can be a mismatch in the perceptions of trainers and trainees about trainees' performance at specific clinical tasks with trainers feeling that trainees are increasingly happy to challenge the feedback trainers give them. Trainers also spoke about their informal feedback interactions with trainees outside of WBA systems. This use of WBA is linked to change in trainee practice and showing progression in training.

How does this compare with the existing literature?

Purpose of WBA

This study showed that trainers perceive that WBA represent an assessment for learning. Trainers described that WBA can help them to deliver specific performance feedback to trainees. Trainers can also find WBA useful in providing specific information about performance to poorly performing trainees.

This perception of WBA as for learning is not consistent with previous small scale quantitative studies in UK postgraduate surgical training (180, 181). Other qualitative work suggests that in a practical setting some trainers struggled to use WBA for their formative purpose (179). It is likely that previous small scale questionnaire studies were not constructed to explore trainers' perceptions of WBA in sufficient detail. Trainers views of WBA as an opportunity for trainees to learn may relate to other, context specific, factors and maybe different even by the same trainer and different times experienced with

different trainees. The qualitative work described above supports this as some trainers in this study also reported WBA beneficial for feedback (179).

Trainers described that WBA were used as part of a judgement about trainees' progression and perhaps they could be used as "evidence" against failing trainees. This use of WBA as an assessment of learning aspect is supported by my quantitative data which suggests that trainers perceive WBA represent an assessment of learning compared with an assessment for learning along a scale between the two domains (116).

Some trainers reported uncertainty in the role of WBA as an assessment for versus of learning. This may explain why though trainers think WBA represent an assessment of learning they tended to view WBA as an assessment for learning compared to trainees (116). This uncertainty may relate to the summative, of learning, aspect of how WBA are used by review boards (ARCP) with other researchers suggesting that where trainers perceive WBA as an assessment for learning and review boards as an assessment of learning this may create tensions in using WBA (182).

Using WBA properly

This study adds to the literature by describing trainers' perceptions around using WBA properly. Trainers described that this entailed engaging in honest feedback conversations with trainees in a timely fashion i.e. straight after the observation of trainees' performance.

Trainers felt trainees need to be proactive in seeking feedback. Which is consistent with other studies looking at trainers' perceptions of WBA in the workplace where trainers felt trainees should be self-motivated and responsible for their own learning (71).

Trainers perceptions that when trainees actively sought feedback this affected the quality and accuracy of feedback they could deliver. With trainers commenting that when they had feedback conversations with trainees contemporaneously this enabled them to give accurate high quality feedback compared to if they were asked to do this after a delay of

time and often solely electronically. These facets of the provision of high quality feedback are also prevalent in the literature (57, 77, 194). Which describes that feedback should be given in real time, in small pieces and repeatedly.

How WBA is used

Trainers described that WBA could be used in a variety of different ways in practice. WBA could be used by trainees to “play the game” and on occasion trainers were complicit in this use. This concept of gaming is apparent in some of the trainee literature (80) including my own qualitative work with trainees (122). Trainers role in this “gaming” by trainees suggests that trainers are complicit in this and tick the boxes for trainees who game to avoid conflict with such trainees, ARCP panels and reduce burden of assessment on themselves as trainers (73, 76).

In contrast, this study also shows that trainers describe their use of WBA to provide honest feedback to trainees. This honesty in providing accurate performance feedback occurred in specific circumstances where trainees had actively sought contemporaneous feedback, trainers felt they had a sufficiently strong educational relationship with a trainee and the skills to engage in such feedback conversations. However, this honesty in feedback was balanced against trainers’ concerns about the consequences this could have for trainees’ self-esteem and medical career, themselves as trainers and the trainee-trainer educational relationship. The pitfalls that trainers perceive in providing critical feedback to trainees is consistent with the existing literature (69, 72, 73, 182, 193). Which describes that trainers are reluctant to provide negative feedback due to concerns about the negative effect this would have on the trainee in terms of self-esteem, progression in clinical practice and also the outcome for the trainee of being failed. Trainers were also concerned for the consequences for themselves in terms of managing the paperwork relating to dealing with a “failing trainee” and what impact this may have in terms of others perceptions of their skill as a trainer (193).

This study suggests there is a mismatch in perceptions of trainee performance by trainers and trainees. This could relate to trainees' self-assessment and reflection of their performance versus observed performance by trainers (190). Trainees may also engage in preserving their self-image and ego by not wanting to display weaknesses to trainers (76, 81, 190). Finally, trainees as part of gaming the WBA system want high performance scores rather than accurately recording and reporting their performance as they are cognisant of the assessment of learning ways in which WBA are used by review panels (ARCP).

Trainers also report their preferences for using WBA as a global as opposed to specific assessment of trainee performance. This is consistent with previous work in relation to programmes of assessment (10)

The relationship between surgical trainer and trainee is integral to how WBA are used within the workplace. This relationship has been highlighted as one of the most important factors in feedback interactions cited in the vast majority of research concerning feedback (54, 64, 70, 73, 79-81). The cultural background within which feedback interactions take place is also important. With some research suggesting that medicine still has some way to go in developing a "culture of feedback" compared to other professions (78). A cultural shift in terms of acceptability and uptake of workplace assessment models is still in process and apparent from the comments of trainers in this study.

Limitations

A single focus group moderator, who was a trainee within that region moderated all focus groups. All focus groups were undertaken in a single geographical region therefore regional differences in trainer training maybe apparent. However, in analysing the trainee focus group data which was collected from different regions there was no apparent regional differences in practice. Bias may have been introduced as this work follows on

from an exploration of the perceptions of trainees towards WBA however the three researchers were mindful of this and by undertaking a rigorous process of open coding and discussion of coding individual biases should be reduced.

Practical applications

There remains a clear and consistent need for continued and repeated training and support for trainers and trainees so that they can engage in meaningful feedback interactions using WBA. Secondly all user groups, trainers, trainees and ARCP panels should agree on the primary purpose of WBA and use them effectively in that role.

Conclusions

This study highlights for the first time the complexity of trainers' interactions in using WBA with trainees in the postgraduate surgical workplace. Trainers' perceptions of the purpose of WBA, their abilities to "use WBA properly" and the trainee-trainer relationship affect "how trainers use WBA". This use is varied and often rooted in the specifics of individual feedback interactions with trainees and the context in which these encounters are situated. Trainers either engage in using WBA when trainees, or occasionally trainers, are "playing the game". In other circumstances trainers engage in "honest" feedback conversations with trainees. Though trainers' delivery of "honest" feedback can be tempered by their concerns about maintaining an educational relationship with their trainee.

8. Comparative Chapter – less team more rules!

Research Question 1. Can Activity Theory help explore the role of feedback and WBA within the complex cultural environment of the postgraduate surgical workplace?

Research Question 2. Can Activity Theory provide a theoretical framework to encompass the perceptions and behaviours of the surgical trainee and trainer for learning and patient care?

OUTCOMES

- 1) Trainees and trainers strive to train future surgeons mediated by feedback for learning.
 - 2) Activity theory can be used to explore the complexity of learning and training in postgraduate surgery. The rules which govern training, fluid medical communities and a changing division of labour within surgery contribute to tensions within and between these systems.
 - 3) Fundamental tensions are placed on trainees' and trainers' abilities to engage in training within the workplace due to tensions with the "rules" of training and patient care, changes to medical communities and the division of labour within surgical teams.
-

Introduction

This chapter explores the qualitative data collected and analysed separately, within sections 5 and 7 of this work, collectively within the framework of Activity Theory. The gap in the current literature will be discussed. This will be followed by a description of Activity Theory and justification for its use in relation to this study. Subsequently the findings of applying Activity Theory to these data will be reported and synthesised to form a model of feedback interactions within the clinical workplace. This will then inform suggestions for practical change.

Feedback has been shown in general to lead to change in individual learners' performance (57, 61, 63). Furthermore the literature suggests that this change, or educational impact, is also apparent in a medical education context (56, 195, 196). The effect of feedback on future learning is reportedly highly variable: general educational literature reviewed by Hattie and Timperley reports that feedback had a profound effect on student future learning (57) however other reviews have suggested a much smaller effect on learning (63, 197).

A recent systematic review, by van der Ridder, has suggested that this variability in feedback effect within the literature relates to the large number of variables which can affect the feedback process (64). These reviewers found evidence to suggest that feedback is effective in changing learner practice when the learner has an initial low level of task performance, when they show goal setting behaviours and when the teacher gives specific and elaborate feedback (frequently and as part of a multifaceted intervention) (64). In this review the context of clinical encounters is mentioned as a variable which relates to the feedback process, but this review does not find evidence to suggest that context plays a role in making feedback effective. This may be partly as this review includes historical reviews but doesn't include recent trials and studies in medical education. Conceptually this review explores variables impacting on the feedback process and feedback effect, but does not consider feedback as embedded within the complexity of the clinical environment with its inherent tensions between learning, training, and patient care and safety.

The context of the clinical environment within postgraduate practice is complex with Durning suggesting that context reflects the complex interplay between the physician, patient and their practice setting (22). He goes on to suggest that context evolves as a process whereby *"interacting factors which add to the meaning of something that exists or occurs in an environment"* and *"allows for change in that meaning as information is added over time"* (22). Therefore, context cannot be viewed as separate from the clinical encounters between trainee, trainer and patient within the workplace.

As well as considering the role of context in feedback encounters Watling (83) has also described that the culture of medicine impacts on feedback interactions. Medical training taking place within a context of learning by immersion in the clinical workplace with variable informal and formal feedback, compared to the controlled carefully planned learning experiences in teacher training with supervised teaching experiences with allocated time for feedback. Also in the context of musicians it was reportedly clear to learners what they needed to change as a result of feedback they received in order to improve their practice, whereas in medicine this appeared to be less certain to trainees (83). So, in considering feedback interactions in the clinical workplace, the role of context and culture remain of vital importance.

From a theoretical perspective: The role of Activity theory in the workplace

Activity has a central role to play in learning in the workplace (44-47). A review of workplace learning suggests that participation and learning occur at both individual and

group levels (48). Learning in the workplace is not solely an individual undertaking but also relies on interaction with colleagues.

Trainees learn not only via the acquisition of knowledge but also by participation in learning activities in a contextual setting (198). Sociocultural learning theory postulates that individuals learn through activity mediated by interaction with others (199). This is linked to the theoretical construct of trainees participating in “*communities of practice*” (51). Lave and Wenger describe the process whereby newcomers or “trainees” are gradually allowed an increasing role in the participation of the practice of a preformed group, and gain in their legitimate participation in that group over time, and their ability to work within a certain group or community effectively. As part of the sociocultural learning theory movement, in contrast to this focus on interaction, Activity theory suggests that learning in the workplace is rooted within the activity of that workplace, in that learning takes place through the participation of learners in the activities of their workplace and subsequently that activity and learning cannot be separated from the social and cultural contexts in which they occur (50).

Regarding previous sections of this thesis; The differing perspectives of trainees and trainers

I have shown that trainers’ perceptions of feedback interactions are different from trainees’. Trainers believe they give feedback, yet trainees don’t perceive they receive it. Trainers perceive WBA represent an opportunity for learning more than trainees. Trainees feedback seeking behaviour is related to their own motivations to learn, but also their relationship with their trainer.

Furthermore, my qualitative work found that trainees perceive tensions in the roles of WBA and this leads them to try to “play the game” and seek positive feedback and avoid negative feedback through assessment systems. Conversely trainees actively seek feedback with informational value for changing their practice outside of the context of assessment. When considered within a self-motives framework trainees’ motivations for seeking feedback varied in relation to contextual factors – their perceptions of the purpose of WBA and relationship with their trainer. Trainers perceptions of how they engage in feedback interactions with their trainees relate to their perceptions of the purpose of WBA, using WBA “properly” (within a time context – contemporaneously rather than delayed), the trainer-trainee relationship, the culture of feedback and use of workplace assessments.

This work to date suggests that trainees' behaviour relates not only their individual motives and goals, but also their interactions with their trainer and the context in which they work and learn. To further the exploration of feedback interactions around workplace activities by trainees and trainers, then conceptually rather than considering context as a distinct separate entity which can interact with individual learners it is possible to explore trainees and trainers within the workplace context by using Activity Theory as the single unit of analysis.

Using activity theory

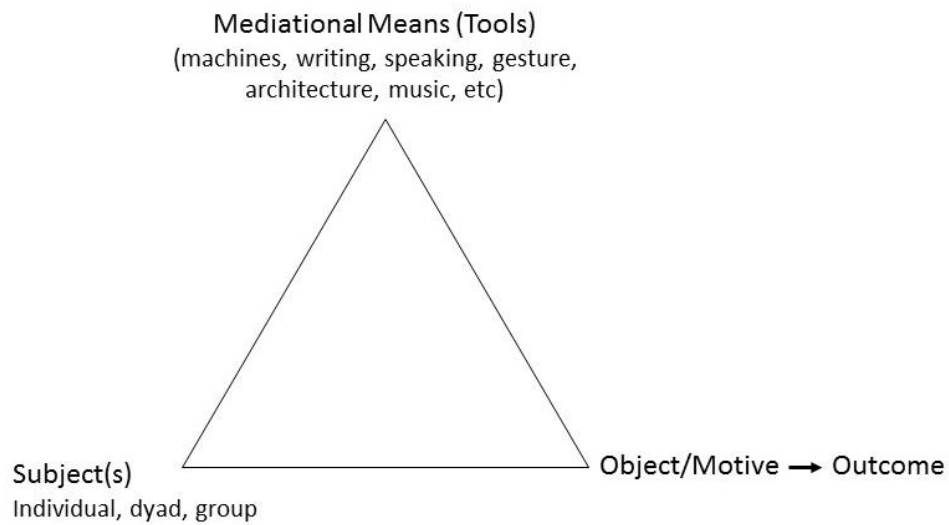
Activity theory based on work of Vygotsky, Leont'ev and Luria is grounded within socio-cultural theory (112). Sociocultural theory is based on the idea that individuals are inseparable from their social and cultural environment (200, 201). Therefore humans are interdependent with their context (202). So, learning and doing are inseparable, individuals learn through doing rather than learning then doing. Engeström described activity theory as a theoretical perspective rather than a theory (50). We are made by what we do, therefore to understand or study individuals we need to look into the activity they undertake.

First generation AT (Action)

First generation activity theory was originally described by Vygotsky (figure 32). He described the nature of the relationship between individuals and nature where both are continuously influencing one another. The process whereby individuals are influenced by their environment is internalisation: individuals make constant "internal reconstructions of an external operation" (49). Simultaneously individuals shape and construct their environment, externalisation: a continuous creation of new artefacts which transform the social and cultural environment (50).

Vygotsky developed the idea that there are always "mediating factors" between the relationship between the subject and the object. In other words, all behaviour is mediated and fundamentally all thinking and learning is embedded within the context in which it takes place. Vygotsky's work provided a model of how individuals learnt through action.

Figure 32. First generation activity theory



Second generation AT (Activity)

Engeström developed five central principles of activity theory that represent its underlying structure and dynamics, this has been conceptualised as second generation activity theory. In developing this theoretical perspective he took inspiration from the work of Leont'ev who conceptually shifted the focus from the actions of the individual to the collective activity of the group (203). His work showed that individuals undertook different actions in order to complete an activity participated in by members of a wider community. Leont'ev also theoretically placed the object as the focus of the activity. *"In this constructed, need-related capacity, the object gains motivating force that gives shape and direction to activity. The object determines the horizon of possible goals and actions."* (204).

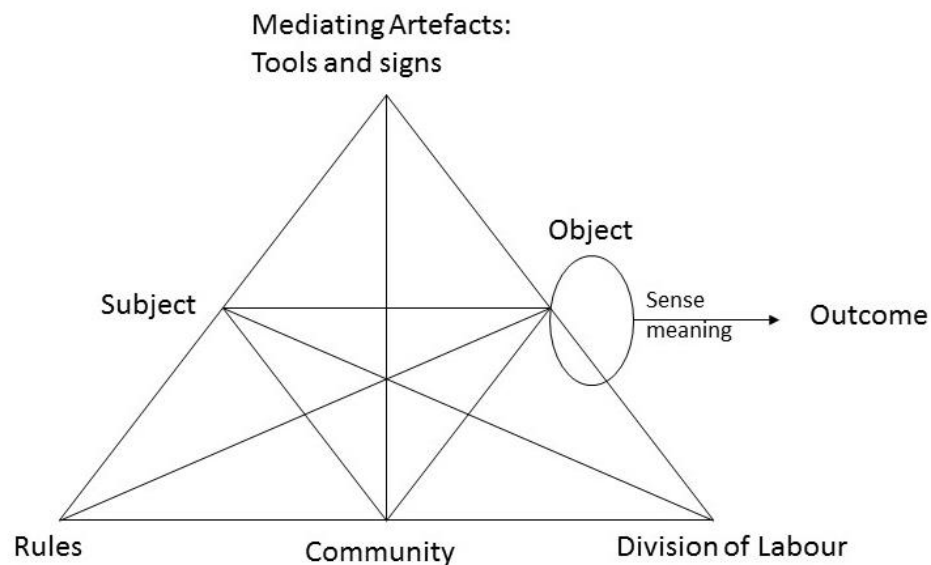
Engeström also drew on the work of Llenkov to emphasise the importance of contradictions within activity systems as the driving force for change and development.

"Inner contradictions of an activity system are "the principle of its self-movement and (...) the form in which the development is cast" (Il'enkov, 1977, p. 330). This means that new qualitative forms of activity emerge as solutions to the contradictions of the preceding form. This in turn takes place in the form of 'invisible breakthroughs', innovations from below."(204).

Ultimately Engeström developed the Activity System (figure 33). Within this model the subject tries to change something (object) in order to achieve a goal (outcome). This is mediated by artefacts, the rules that apply in that activity, the community that is involved in the activity and the division of labour between members of the community. All aspects

of activity systems influence one another therefore there are two sided arrows between each component (112).

Figure 33. The Activity System (112).



Subject = person whose point of view you take, individual whose agency is chosen.

Object = true motive of activity, “problem space” at which the activity directed

Outcome = goal of the activity, the object will be transformed into.

Rules = formal – laws, informal – norms and conventions (societal norms), gender differences, different ages

Community = common objective of activity

Participants on multiple levels, shared understanding about what individuals doing and what this means for their community. Community is those who define the object in the same way as subject.

Division of labour = vertical - related to power, status and gender, horizontal - division of tasks within the activity

Third generation AT (Activity systems)

In third generation activity theory activity systems as a whole are placed in a network of activity systems that interact with and influence each other (205).

- The first principle is that the activity system is considered as a single unit of analysis.
- The second principle of activity theory is its multi-voicedness. An activity involves a collective of interacting individuals and communities who express different interests and views.
- The third principle is historicity. The activity system develops over time and understanding its current form requires knowledge about its past e.g. how rules of assessment of clinical skills were developed.
- The fourth principle relates to the central role of contradiction as a source of change and development of the activity system. For example, this could be contradictions between subject and artefact, and such contradictions can be mediators for change and transformation of the activity.
- The fifth principle is the possibility of expansive transformation, collective changing of the activity leads to the development of new ways of doing (205).

Why use activity theory?

From theoretical stance

Activity theory is based on the premise that activity drives learning, and that conscious learning emerges from activity, so learning is not a precursor to activity. This resonates with surgical practice where learning in the workplace occurs through doing, engaging in workplace activities.

Activity theory also offers the opportunity to consider the complex social and cultural workplace dynamics in which learning occurs in postgraduate surgery. Activity theory suggests that learning and context are inseparable, and we have found that context is of paramount importance in this research study, therefore by adopting an activity theory approach to analysing these data offers a unique way of thinking about the context in which workplace learning and feedback occurs in surgery. Using activity theory to explore these data allows exploration of the role culture and history play in determining trainees' and trainers' perceptions and behaviours when engaging in using workplace based assessments.

Activity theory has been previously used in exploration of learning in the workplace (Vygotsky (49), Engeström (205), Daniels (206)). It has also been used in medical education research to explore tensions between different “communities” in undertaking workplace activities in the context of prescribing errors (207), General Practice training (208) and cultural complexity (209).

By utilising the theoretical stance of activity theory different individuals’ perspectives around specific activities for example trainees and trainers’ perceptions of surgical training or learning in the surgical workplace can be explored. Also, the “historicity” of learning can be considered. Surgical training has undergone a huge shift to a competency based model of postgraduate training and how senior trainees’ experiences of training before ISCP and trainers’ experiences as trainees cause tensions within and between activity systems are enabled using this theoretical framework.

Finally, this theoretical perspective allows comparative exploration of the various strands of qualitative data to look for areas of conflict and challenge (which previous sections of this work have found) as these could represent potential areas for change to improve workplace learning for surgeons.

Practical stance

Activity theory is a perspective which encompasses the complex social dynamic in which surgical training takes place and WBA are used. It allows exploration of different perspectives around the same activity, to look for areas of agreement and discrepancy, which could aid exploration of these data. Intrinsically it appeals to surgeons who are concerned within the workplace with the act of doing and learning through doing workplace activities.

Potential problems in using activity theory

The practical problems relating to using this theoretical perspective relate to compartmentalising the complexities of the surgical workplace into different components of the activity system.

RQ: Can Activity Theory help explore the role of feedback and WBA within the complex cultural environment of the postgraduate surgical workplace?

RQ: Can Activity Theory provide a theoretical framework to encompass the perceptions and behaviours of the surgical trainee and trainer for learning and patient care?

Methods

Qualitative data was collected as described in sections (5) and (7). This study constitutes further analysis of both the trainee and trainer data already collected. The literature supports the use of qualitative methodologies in undertaking research using activity theory (210).

Participants

Trainees from four UK regions participated in ten focus groups and trainers from a single UK region participated in six focus groups. Trainer and trainee focus groups were undertaken at the same sites. Details of study setting and inclusion criteria for focus groups provided in earlier sections of this work (section 5 and 7).

Analysis; Second generation activity theory

Second generation Activity Theory was used to determine Activity Systems (AS) for trainees and trainers within postgraduate surgical training, with consideration for the role of feedback in workplace learning. Components of the respective AS were identified. Different trainee and trainer perspectives were explored to allow consideration of the multi-voicedness of the different AS. The qualitative data was explored to look for references to historicity, how surgical training occurred before the introduction of a competency model of postgraduate surgical training ISCP. Senior trainees and trainers spoke about their experiences as trainees prior to ISCP, and trainers less frequently spoke about their own interactions with their trainers when they were trainees.

To explore these Activity Systems, the researchers looked for ways in which components relate to each other. This was done by

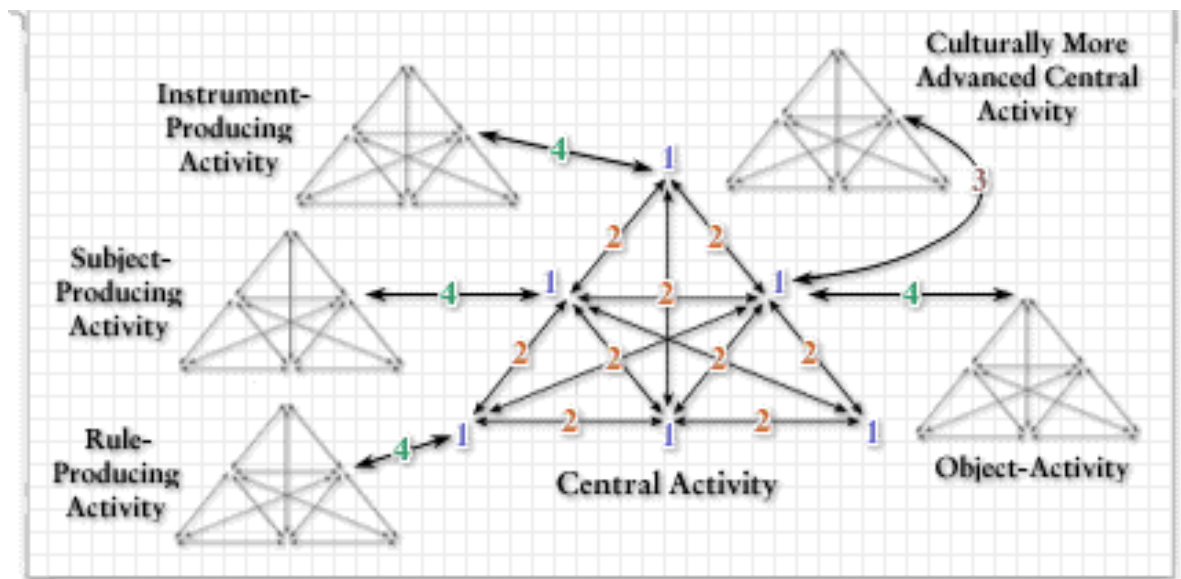
- 1- Looking at differences within components
- 2- Looking at differences between components
- 3- Looking at differences between a current and a historical perspective as activity can only be understood in context of what has gone before (204) (figure 34).

Analysis; Third generation Activity Theory

Third generation Activity Theory was then used to look for clashes between different Activity Systems. After developing AS for learning to become a surgeon (trainee perspective) v training surgeons (trainer perspective) using second generation AT, this subsequent study explored tensions between these Activity Systems and subsequently an AS relating to trainees' role and responsibilities in patient care.

Third generation AT has been used to answer the research questions set by this study, to compare the perspectives of surgical trainees and trainers to feedback and learning in the surgical workplace. It became evident from the initial qualitative template analysis (Section 5) that the role that trainees play in patient care interacts with their training in the workplace, therefore it is important to look for contradictions as a source of tension between an AS exploring the role trainees play in managing patients and AS of the perspectives of trainee and trainer in relation to surgical training.

Figure 34. Shows sources of tensions within and between activity systems (204)



1 = contradictions within components

2 = contradictions between components

3 = contradictions with historicity

4 = contradictions with different Activity Systems

Results

Firstly, the results relating to second generation Activity Theory and the generation of Activity Systems for trainees and trainers will be discussed. Subsequently how these relate to the historicity of what has gone before, how the postgraduate workplace learning and teaching has changed in recent years from the perspective of the trainee and trainer are explored. These Activity Systems have then been analysed to look for areas of contradiction within and between components of the different systems.

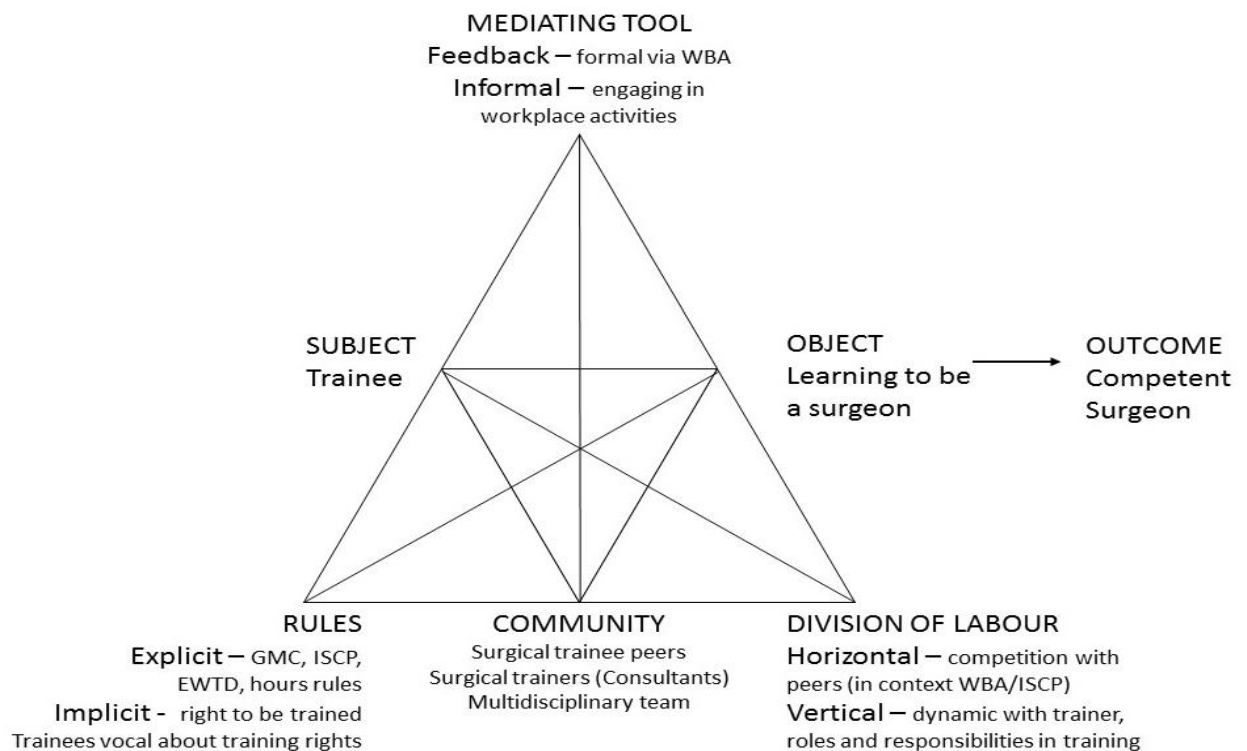
Third generation Activity Theory to look for contradictions between the trainee and trainer Activity Systems was then undertaken. Finally, how this relates to the role trainees play in working to manage patients within the clinical workplace is then discussed.

Second Generation Activity Theory; Trainee analysis

Trainee Activity System

The following figure shows the Activity System for training trainees in the surgical workplace (figure 35). In this Activity System, the trainee is the subject who seeks to become a competent surgeon (outcome) through undergoing a process of “training” and “learning” (object). This relationship is mediated by their feedback interactions with trainers in the clinical workplace. The rules of training relate to explicit rules of regulatory bodies, GMC (General Medical Council), competency based programmes of training (ISCP, Intercollegiate Surgical Curriculum Programme) and regulation of junior doctor working arrangements (EWTD (European Working Time Directive, Tomorrows Doctors). The community includes fellow surgical trainees, surgical trainers and the larger multidisciplinary team. The division of labour within surgical training is reflected in the horizontal division of labour between trainees, a degree of competition for clinical exposure, particularly operative, and competition in training. The vertical division of labour reflects the hierarchical relationship between trainee and trainer and the roles and responsibilities of both parties to engage in surgical training.

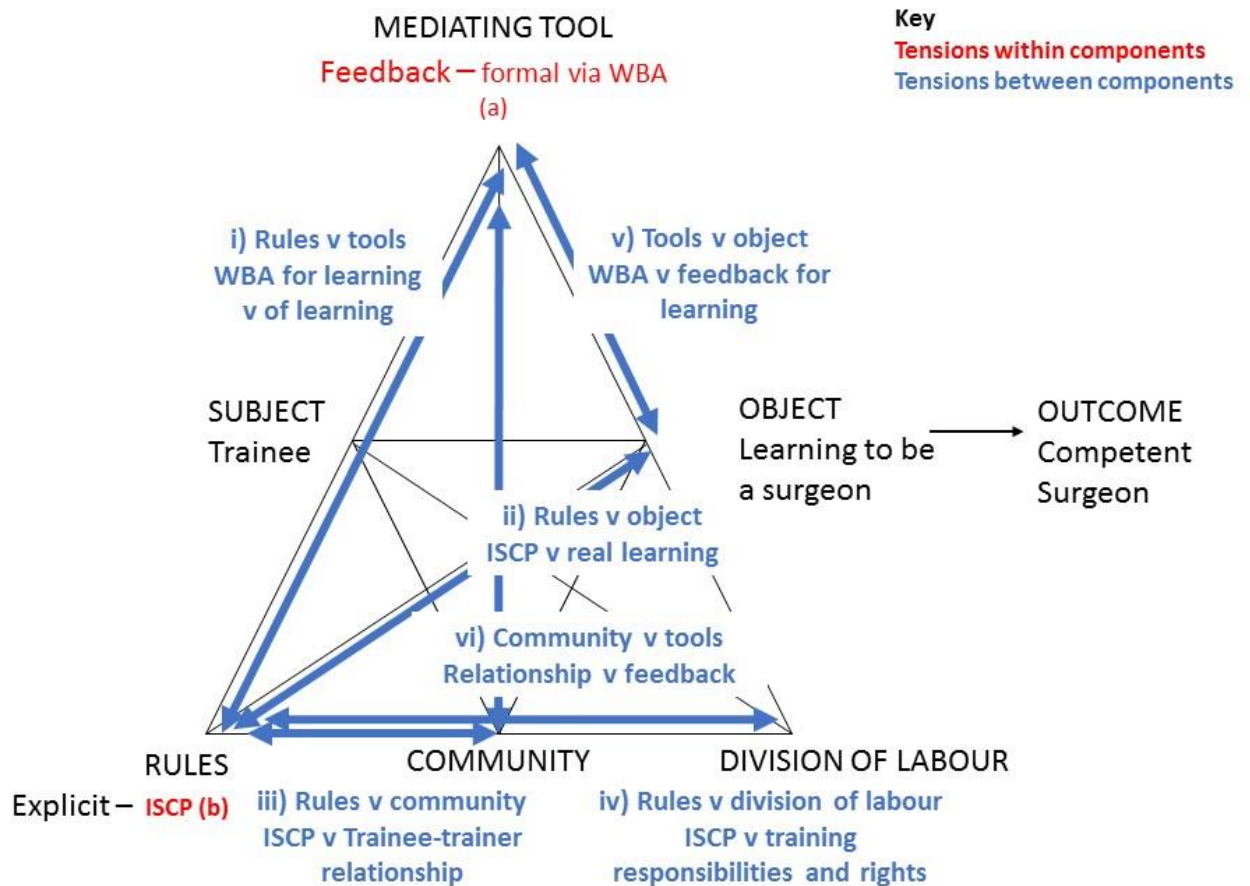
Figure 35. Shows trainee Activity System for learning to become a surgeon



Contradiction as a source of tension within the Trainee Activity System

This Activity System has been explored to look for areas of contradiction within components and contradictions between components (figure 36).

Figure 36. Shows contradictions within components and between components of the Trainee Activity System to become a surgeon.



Contradictions within Components

Two contradictions within individual components of the Activity System for trainees were identified these included using WBA properly (tools) and trainees being unsure how to use the ISCP system (rules).

- a) Tools; Using WBA properly to gather feedback

Trainees described tensions in wanting to use WBA properly and worrying about potential consequences of doing so.

“they are using this nationally collating everybodies data. They are producing these pathetic little generic colour schemes of green, yellow and blue. You are either outstanding, you are where you should be or borderline rubbish and if you are below where everybody else is for your level of training then there is a problem but if you have got trainers that say come on can you really do a low anterior resection as a 4 or is it really a 2 then we are honest about that and we use it in an educational way. Everyone else third year registrars are going to say I am a 4 at anterior resection its lying and that’s the danger.”

“the main problem I think is the variability in who is using the system. You know some people will say yes I’ll sign anything off for you errm some people will be very good and do proper formal feedback and there is no way to tell in the tick box form who sat down and did it properly and who has just you know sent it and got it ticked and its I agree if it’s done properly and everyone’s got the time to sit down and do it properly then there’s no problems its excellent for everyone involved. But in the real world that doesn’t happen.”

[B.3]

- b) Rules; Trainees don’t know how to use ISCP, not had training in using ISCP

Trainees reported being unsure how to use ISCP to gather feedback

“There is very little guidance isn’t there as to how we are supposed to do them at the beginning. You know we all have an induction but nobody really knows you just need a certain amount per year that’s all it says” [1.2]

Contradictions between components

Several contradictions between components of the trainee Activity System were identified from analysing these data (figure 36). These included tensions between rules versus tools, object, community and division of labour. Further tensions were between tools versus object and community. These tensions are explored in greater detail below.

- i) Rules v tools; perceptions of WBA of learning v for learning

Trainees reported tensions between their perceptions of WBA as an assessment of their learning versus assessment for learning. Conceptually this considers that WBA are part of “rules” that govern training as an assessment of learning and also an assessment for learning where they can promote the use of feedback is a “tool” for learning.

"I did that. I did that because I thought that would be useful for my learning and it would be good to put on my ..er to put in my WPBA because I thought this is highlighting areas where I can improve" [1.1] versus "At the end of the day we do it because we think it's a numbers game and it just kind of gets reinforced that they just want to get us to do the numbers" [2.2].

"I think you learn more from doing assessments on something you don't know about because then it will spur you to go and find things out and go and learn more about something. But because you know you are being assessed and its being compared with other people, not directly at the time, but it's you are being assessed against other people do you want to be flagging up that you don't know things" [B.1].

ii) Rules v Object; WBA (ISCP) v real learning

Trainees described tensions between their use of WBA (ISCP) to promote a positive image of themselves to others in contrast to real learning which occurs outside of the WBA system.

"Which detracts again and almost runs in parallel then to your real learning I suppose where you are actually asking them these questions and trying to improve your knowledge base whereas you probably wouldn't do so if it was a formal CBD perhaps" [B.1].

iii) Rules v Community; ISCP v trainee-trainer relationship

Trainees perceived that ISCP has created tension in their relationship with their trainer and their feelings when asking trainers to engage in WBA interactions.

"You have to be quite apologetic about asking people to do it. I say to people like sorry but can you do it" [1.2].

"It's always a huge favour you are asking. I've always found that actually" [1.3].

*"I think you as a trainee have a relationship with your bosses. You know how to liaise with them about feedback and how things have gone. Some will be very adamant and forthright and say I thought that was **** some will be more subtle but I think you get that feedback by interacting with people in an old fashioned way rather than looking at a computer screen" [C.3].*

iv) Rules v division of Labour; ISCP v training responsibilities and rights

Trainees increasingly demand training opportunities and feedback from their trainers to conform to the rules around ISCP and this creates tensions with the hierarchical

relationship between trainees and trainers. Though some trainees spoke about feeling awkward when asking for feedback due to the hierarchical nature of their relationship with their trainer.

“I think the worse thing about them in that situation of feeling almost embarrassed about having to ask someone to take the time to do it. You always feel like you have to be apologetic for it. Which I think it is quite frustrating” [N.1] Trainee.

v) Tools v object; WBA v feedback to guide future learning

Some trainees spoke of their ability to use WBA as an assessment for learning to gather feedback they could use to change their current practice. This happened in some circumstances but not so in others.

“With CBD’s as well the other advantage is if you ‘ve learnt something from a chat you have actually had you can actually put it into the CBD yourself. Then you can send it to the consultant who can just read through or add to anything they feel that they wanted to add to the discussion. So literally you are documenting a discussion of what you learnt the learning points yourself which is quite useful” [E.1].

“It all tends to go back to broad core themes which if I’m totally honest I knew quite a lot about already and there wasn’t an awful lot of holes in my knowledge about it but they were the easiest things to do at the time because I needed them done” [B.1].

vi) Community v tools; trainee-trainer relationship v feedback

Trainees reported they engaged in working with many different consultants on an ad-hoc basis and this created tensions between trying to gather feedback which trainees perceived carried enough credibility for them to use to change practice.

“So if its someone you’ve not worked with very often you are unlikely to have a good rapport with them or if its someone who you don’t really respect professionally that highly then that maybe because you don’t respect their clinical judgement and therefore any feedback in your mind any feedback they give you may be impaired to some degree” [B.3].

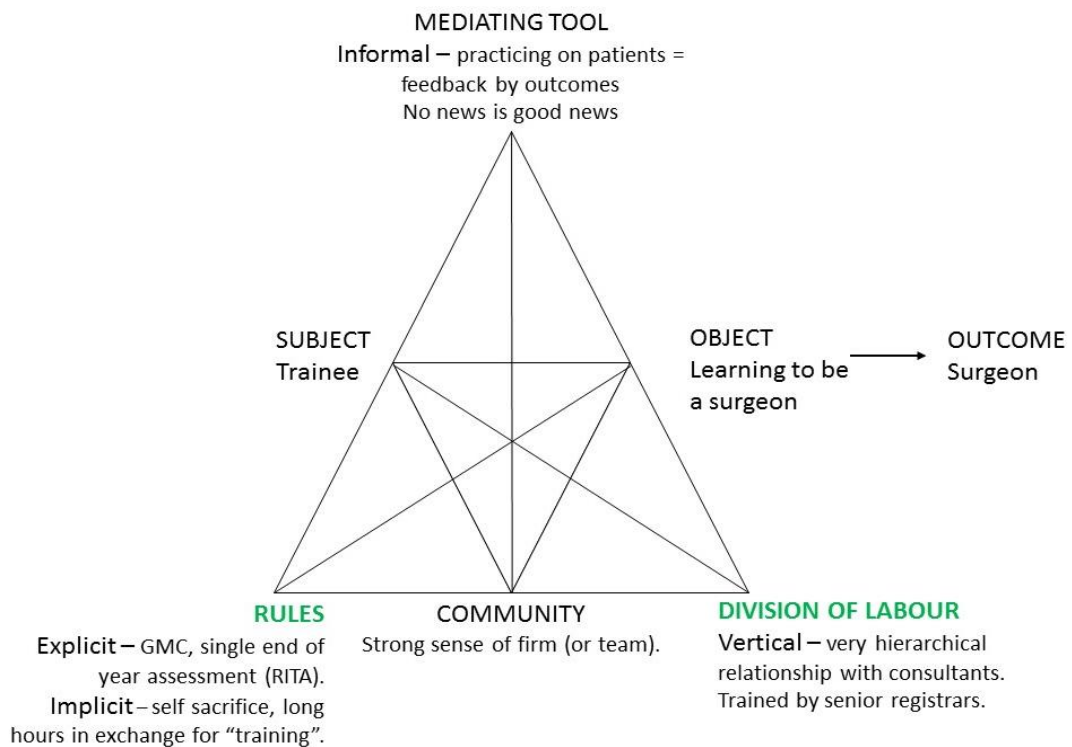
The historicity of trainees learning in the surgical workplace.

This section explores the historical perspective of surgical training taken from senior trainees' and trainers comments about their own training prior to the advent of a competency based model of postgraduate surgical training in the UK (figure 37). This Activity System was then compared with the activity system for current surgical training through the trainee Activity System to look for areas of contradiction.

As part of previous initial trainee analysis comments in relation to the theme of "process of cultural change" had been identified.

"I think as the ISCP generation starts coming through as consultants it will start to get easier. I mean you see with the juniors now they send us DOP's and kind of most of the time do them or I think I try to do them." [Trainee - A.1]

Figure 37. Shows the historical Activity System for training surgeons.



i) Rules

The explicit rules of the Activity system for trainees have changed with trainees now being required to engage in working within a system of explicit training rules through the competency based model of training, ISCP. Current trainers had no experience of this system when they were trainees.

"We never had it you know when we were trainees" Trainer [2.3].

"I am glad I didn't have to do it whilst I was training but they do know what they have to do" [F.2].

Historically trainees worked long hours to gather training opportunities, implicit rules, whereas current trainee working hours are limited by working hour regulations, explicit rules.

"The difficulty is you have the same people. The culture has changed we know that the the timing has changed. Because the doctors used to work maybe 100 hours they can't do anymore. They can't be trained in each speciality the way it happened. General surgery used to do a lot of stuff that can't be done anymore. So, those things you know are changed obviously you can't do that but the learning is the same isn't it? It is the way how you learn it. So yes we have to change, I am not suggesting you don't change, or you can't change, you have changed because the things have changed" Trainer [2.1].

Working hour regulations, explicit rules, have also caused tension with the historical sense of the "medical community" with hierarchical medical teams being replaced by larger teams of consultants and a variety of different trainees.

"as an SHO you are in with a lot of different people and you can't just say to one person how have I performed because you have been in with so many different people. They've probably seen you only a handful of times" [2.2].

ii) Division of Labour

Historically the division of labour within surgery and other hospital specialities had a strong sense of vertical hierarchy. With trainees having a large role in providing routine ward work and clinic provision as well as emergency care. This division of labour has changed with fewer trainees providing clinical care in a higher intensity environment. The division of labour between trainees and their trainers has also changed.

Tensions created between changes in division of labour and tools with trainees being perceived as undertaking less work in general but also demanding more "training" opportunities, formal and informal from their trainers.

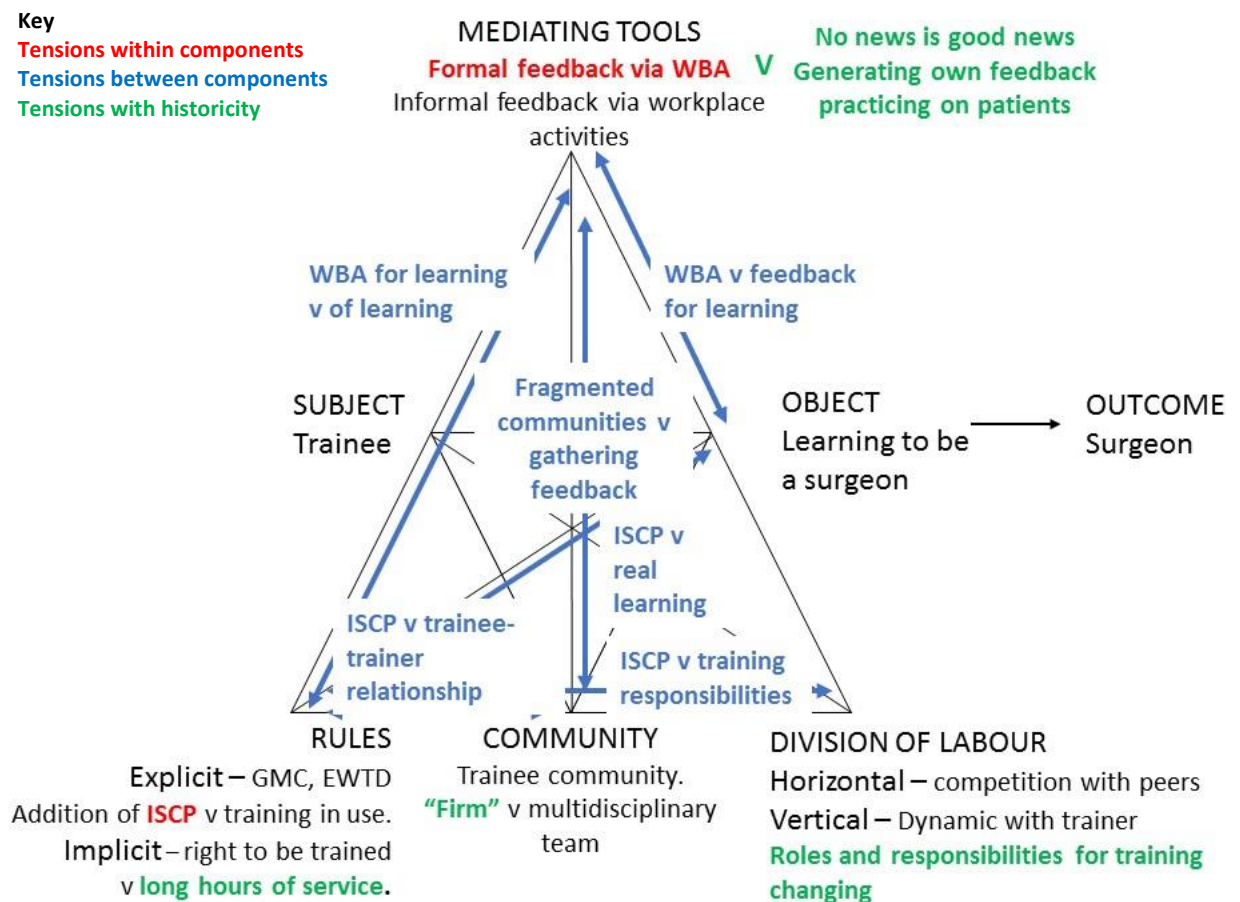
"But you guys coming through your generation I think you've learnt a lot better assertiveness and professional generic skills. You behave like adults so you approach your trainer as an adult and you get treated as an adult. Whereas I am very much, I mean I

struggle with assertiveness more than others, but you know I think if you approach if you have a very hierarchy mentality and you are a bit too respectful and polite of your trainer a bit too intimidated by them then you don't approach them as an adult you don't get the change out of them. You don't get them done. I think that's a personal self-reflection but I think I am probably not on my own in that. I think our generation were more.. did struggle more getting the sort of getting these things done" Senior Trainee [D.2].

"Well there are two sides to that aren't there? On the one hand you could have an excellent longitudinal training experience where you increasingly gain the trust of your trainer and are able to develop as rapidly as possible. On the other hand you might be working with somebody you can't stand and you can't get away from. So it can work either way I think" Trainer [C.2].

These findings were integrated to develop the following Activity System relating to tensions in learning to become a surgeon in the workplace (figure 38).

Figure 38. Shows the integrated Activity System for Trainees

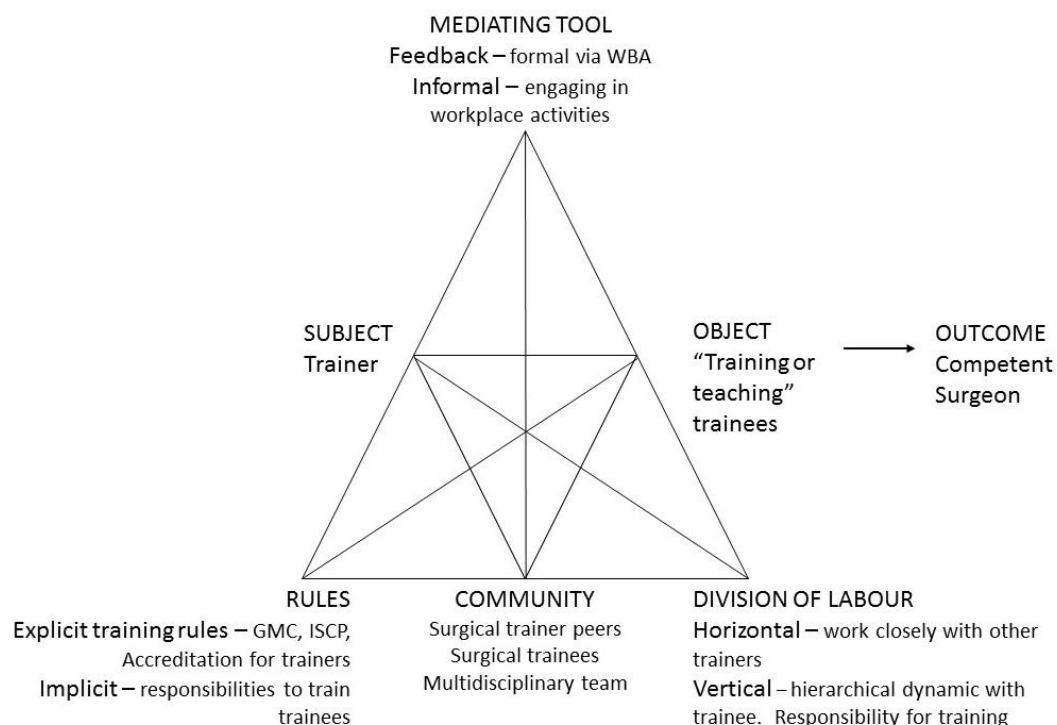


Second Generation Activity Theory; Trainer analysis

Trainer Activity System

The following Activity System shows surgical training from the perspective of the trainer (figure 39). The surgical trainer (subject) works to achieve the goal of training competent surgeons (outcome) via training (teaching) (object) trainees. This relationship between trainer and training is mediated by engaging in feedback interactions with trainees. This feedback can be formal via WBA or informal outside of WBA. The rules that govern trainers position as trainers include explicit rules GMC, regulation of training and competency based model constraints (ISCP). Implicit rules relate to trainers' responsibility to train trainees. The community includes other trainers, trainees and members of the multidisciplinary team. The division of labour within surgical training relates to horizontal division of labour. This incorporates working closely with other trainers and undertaking clinical work with other trainers. The vertical division of labour in surgical training reflects the hierarchical relationship between trainer and trainee. Trainers are actively involved in undertaking increasing amounts of clinical work and interacting with trainees in the workplace.

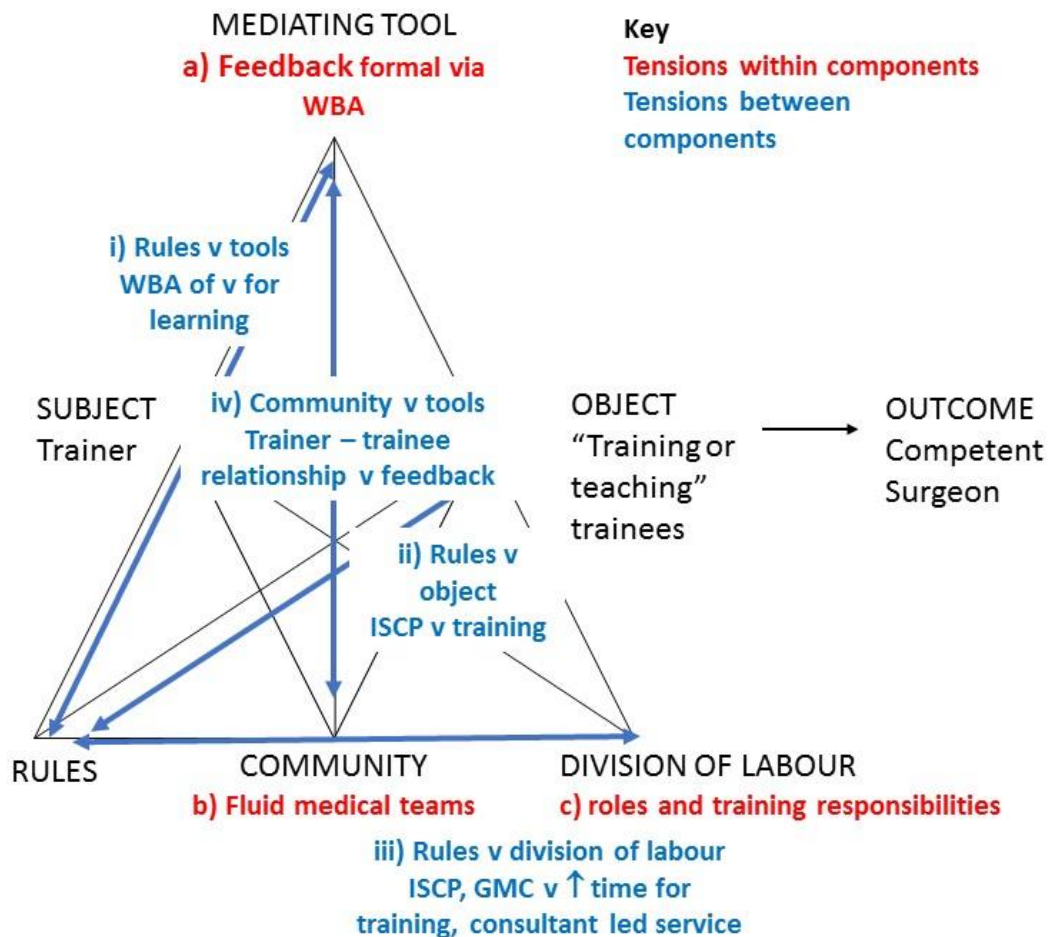
Figure 39. Shows the Trainer Activity System for training trainees in the workplace.



Contradiction as a source of tension within the Trainer Activity System

This trainer Activity System was then explored to identify areas of contradiction within components and contradictions between components (figure 40).

Figure 40. Shows tensions within and between components of Trainer Activity System



Contradictions within components

Several contradictions as a source of tension within components of the trainer Activity System were identified. These included tensions in trainers' perceptions of the use of WBA to provide feedback to trainees (tools), changing and fluid medical teams (community).

- a) Tools; Using WBA properly to provide "good" feedback

Trainers described that they perceived tensions which sometimes hindered their ability to use WBA "properly" to provide "good" feedback to trainees.

"I think one of the problems is that obviously for ease of data handling it tends to be very much some kind of an analogue scale or something and not very much free text which makes it difficult to tailor the feedback really. But obviously I do realise that makes trying to deal with the results very cumbersome." Trainer [C.1]

"I think if they are done properly i.e. filled in properly with appropriate time spent for feedback and er assessment then they are a really useful educational tool." Trainer [D.1]

b) Community; Fluid medical teams

Trainers talked about tensions within their role and responsibilities within changing medical and multidisciplinary teams. Where they do not always work with the same members of a junior team.

"I may have a trainee who come and does a list with me on one particular day and then may not see them for three weeks." Trainer [C.1]

c) Division of Labour; formalising training encounters and the increasing demands of "consultant led care".

The vertical division of labour, the demand on trainers to engage in increasing amounts of formal engagement with trainees to complete WBA for trainees reflects a greater responsibility towards training in general and trainers described tensions between this and their increasing clinical and training responsibilities.

"If you think about I mean I see 4th year medical students, 5th year medical students, FY1's, FY2's, core trainees and SpR's and everybody comes to me with an electronic logbook that requires filling in and it is exhausting." [D.1]

"And there is so much paperwork to fill out immediately after doing an anterior resection. You are both knackered and you both need some food or some drink or whatever and its yet another form to fill in at that time. So it can be a challenge." [D.1]

"But we have all got a million and one things on our mind, how the list running and can I get this last one done and all this stuff and that's the reality of it so probably we are going to make work for ourselves because if I say lets make this a PBA I am thinking I have got to go through it with you and I have got far too much on the list and what am I going to do." [D.3]

Contradictions between components

Contradictions between components included the rules versus object, tools, and division of labour and between community versus tools.

i) Rules v tools; WBA as an assessment of learning v assessment for learning

Trainers reported contradictions in their perceptions of WBA as an assessment for learning in tension with an assessment for learning. To be consistent with the trainee analysis and in finding similar tensions in trainers' perceptions of WBA it has been conceptualised that WBA (ISCP) form part of the rules that govern training but also have a role as a mediating tool in the provision of feedback to trainees.

"But I think it is probably more important to have the discussion after the operation as x was saying rather than doing putting the form in from the patient from the trainees' perspective. But obviously you need a paper record" Trainer [B.1].

ii) Rules v object; WBA (ISCP) v training trainees

Trainers reported tensions between complying with the "rules" of a competency based model (ISCP) and their perceptions of the way in which they engaged in training trainees to become surgeons.

"yeh that's my feeling old style. Slightly old style where you observe them for six months and then you give an opinion on whether yes x can do this procedure good at handling tissues, good at post op care that kind of step rather than tick boxes isn't it. I think we are doing both now. Ticking boxes just for the ARCP's sake and then to prepare surgeons with oral feedback and on table constant discussions" Trainer [2.2].

iii) Rules v Division of labour; ISCP v trainers' clinical role and responsibilities for training

The rules that govern training, the requirements on trainers to engage in formal educational supervision and assessment systems can be at tension with trainers' clinical workload and training responsibilities. Trainers are required to frequently engage in using WBA to assess trainees' performance and have increasing clinical responsibilities as the NHS adopts a consultant delivered service.

"And there isn't a culture of constructive criticism yet within surgical training its coming but it's not there yet. And I err think you also get a bolshy trainee who will say well what's your

evidence for saying that and I am afraid I think it is difficult to collect the evidence.” [B.6]
Trainer

“Just on I hate to say the word (a) common sense point of view the learning of how to function in a clinic cannot be better in SHO’s now than it was 10 years ago because SHO’s don’t go to clinic. However, we are led to believe that if people are filling in CBD’s and CEX’s and gaining clinical competence or competency in history taking, management, organisational skills etc then they are quantifiably better able to perform in a for example the outpatient environment. And I find it difficult to justify that discrepancy in my mind so in talking about these people that are just tick box kings and queens it is it raises important points about how we sort of judge these discrepancies and how what are we are actually getting from our .. trainees.” [B.7] Senior Trainee.

iv) Community v tools; Trainer – trainee relationship v honest feedback

Trainers reported tensions between providing trainees with appropriate performance feedback whilst maintaining a positive educational relationship and sense of team community.

“Well these are your registrars you often form a good rapport they work hard for you in other ways and sometimes on the basis you don’t want them brought down on the basis of one operation that might not have been done so well and it maybe that they have lots of other operations that went pretty well but.... And they think they are ready and its and I have down-graded some cases don’t get me wrong. But it is difficult you know there is going to be a little bit of err bad feeling there they will see that actually he thinks I am not quite as good as I think I am” [B.1]

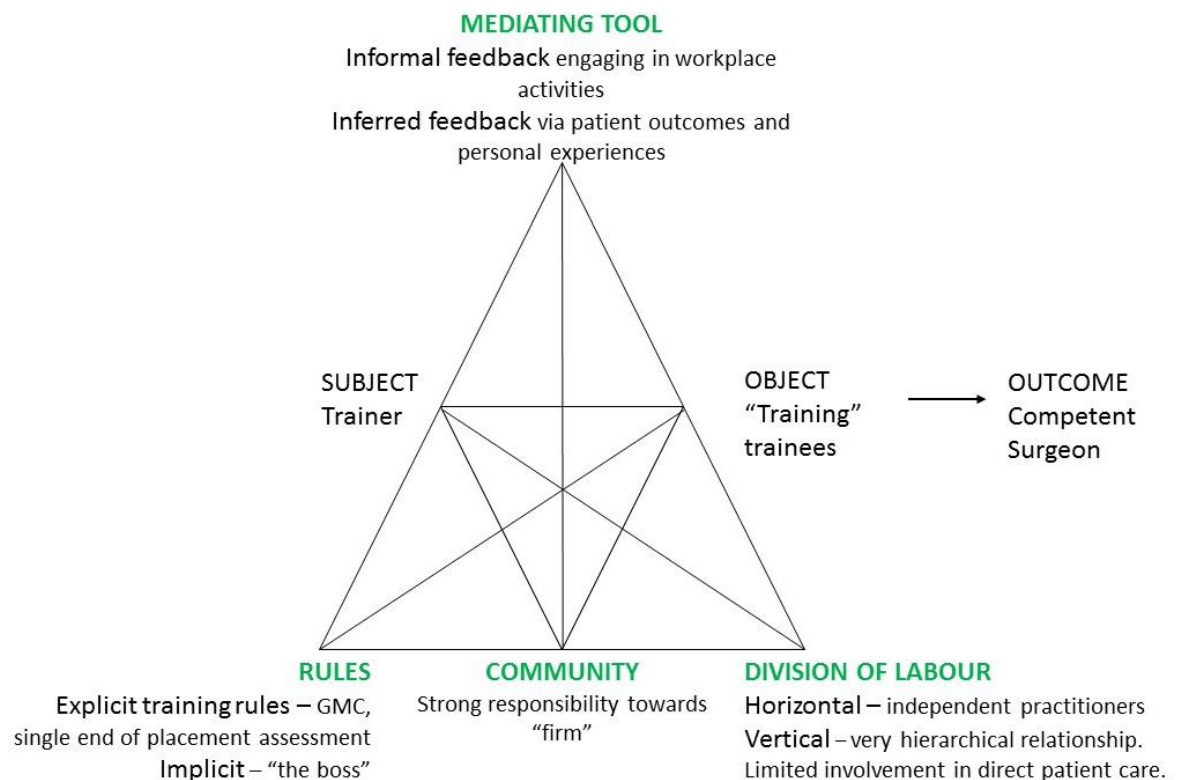
“I think it depends on the quality of the trainee. I find it hard to do a bad assessment. I’d sooner sit down and say can we have a chat I am abit concerned about that, and this and somebody has highlighted this issue with your practice. But when it is all formalised onto a computer screen and you really want to write close to borderline or not acceptable it is harder to do that with them there whereas when they are really good and they have done something exceptionally I find it a very good way of praising people

I think I am the opposite... I think for a difficult trainee it is helpful... Because it gives you the structure to say actually that bit” [F].

Contradictions with historicity

This section explores the historical perspective of the trainers' role in surgical training. This is taken from senior trainees' and trainers comments about their own trainers prior to the advent of a competency based model of postgraduate surgical training in the UK. This historical Activity System was then compared to the current role of the surgical trainer through the contemporary trainer Activity System to look for areas of contradiction and tension (figure 41).

Figure 41. Shows the Historical Trainer Activity System



i) Mediating Factors

Trainers role in the provision of feedback to trainees has changed. Historically feedback was informal or inferred whereas now trainers are required to engage in formal feedback systems providing and documenting feedback with trainees. Some trainers described their perceptions of how feedback had changed since the introduction of structured feedback opportunities, using WBA as an assessment for learning.

"I do think before when you just had the paper RITAs that you would sit down maybe mid-term and maybe once at the end and then you have had a good year or maybe there were a few things they could have done a little bit differently then I think it does help the

trainees during the year to focus on where they need to develop so I think they are a good thing generally” [F.3].

“So until you leave them to do things on their own they won’t learn” [2.2].

ii) Rules, explicit.

The competency based model of postgraduate training, ISCP, has created new rules for training. These rules relate to a requirement on trainers to engage in formal systems of feedback, documentation of feedback and regulation or accreditation for trainers this source of tension was identified by trainers when they considered their own experiences of being a trainer prior to ISCP.

“I mean I think what needs to be emphasised to trainees and trainers is that they need to understand the reasons for it and how to do it and why it is a useful tool. Because it does actually provide you with a good deal of evidence if they are done properly” [D.2].

“You do identify the most probably the young consultants are better trained to do these sort of things (WBA) than the old people. But they never had these sort of trainees’- the people (who) are close to retirement. You know you always find it difficult when you get those people. But I think they are also learning” [2.6].

“P: yeh that’s my feeling old style. Slightly old style where you observe them for six months and then you give an opinion on whether yes x can do this procedure good at handling tissues, good at post op care that kind of step rather than tick boxes isn’t it. [now]... Ticking boxes just for the ARCP’s sake” [2.1].

iii) Community

Trainers sense of their team, firm, and identity of their team have changed with a move to working as part of larger multidisciplinary teams as trainees working hours are reduced.

“P6: Nowerdays the traditional firm structure is gone Gone are the days where you had a trainee for a year. Doing all your theatre lists, doing all your on call and things like that. Then at the end of the year you could say I am very happy with the progress of this trainee” Trainer [C.1].

iv) Division of Labour

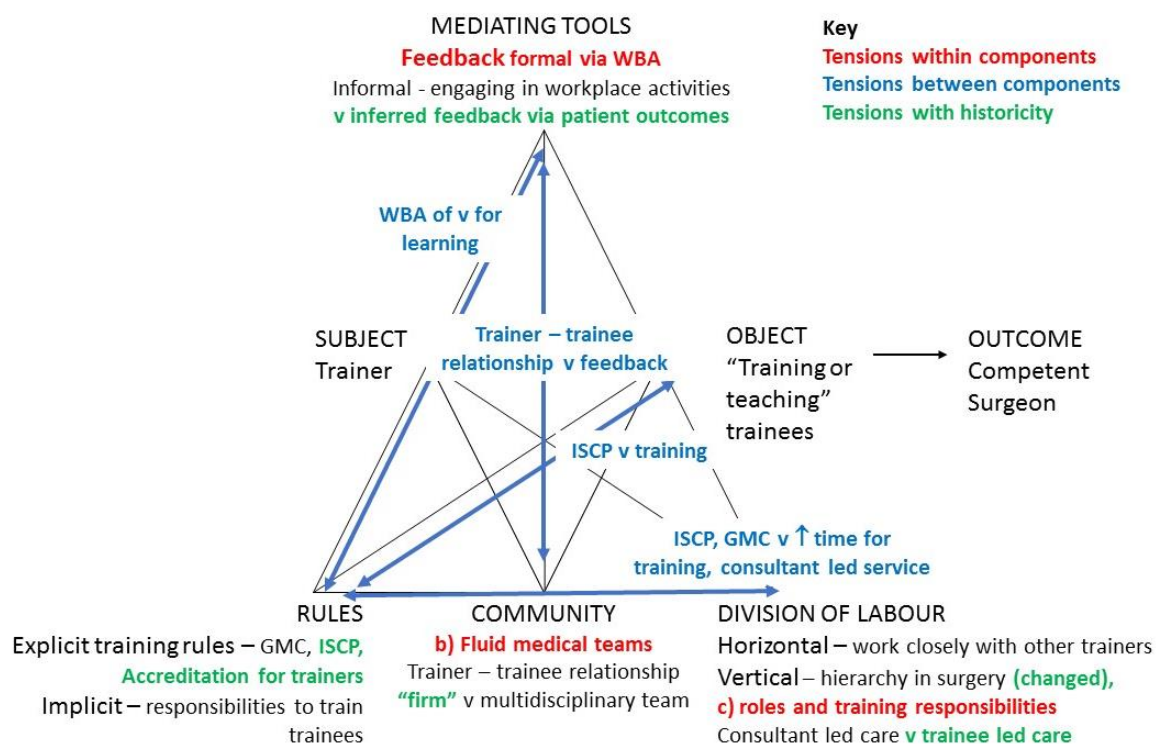
The strong sense of a hierarchical relationship within surgical specialities has reduced with trainees challenging their trainers. Trainers’ involvement in the day to day management of

patients in terms of on the shop floor clinical work compared to their predecessors has hugely increased.

“Because they challenge you and say I think I am a lot better I think you are doing me down. Most surgeons will turn round and will end up with a slanging match which is not helpful to anyone and that is when the bun fight goes up and everyones in trouble” [B.5].

These findings were integrated to develop the following Activity System relating to tensions in training surgical trainees in the workplace from the trainers’ perspective (figure 42).

Figure 42. Integrated Trainer Activity System



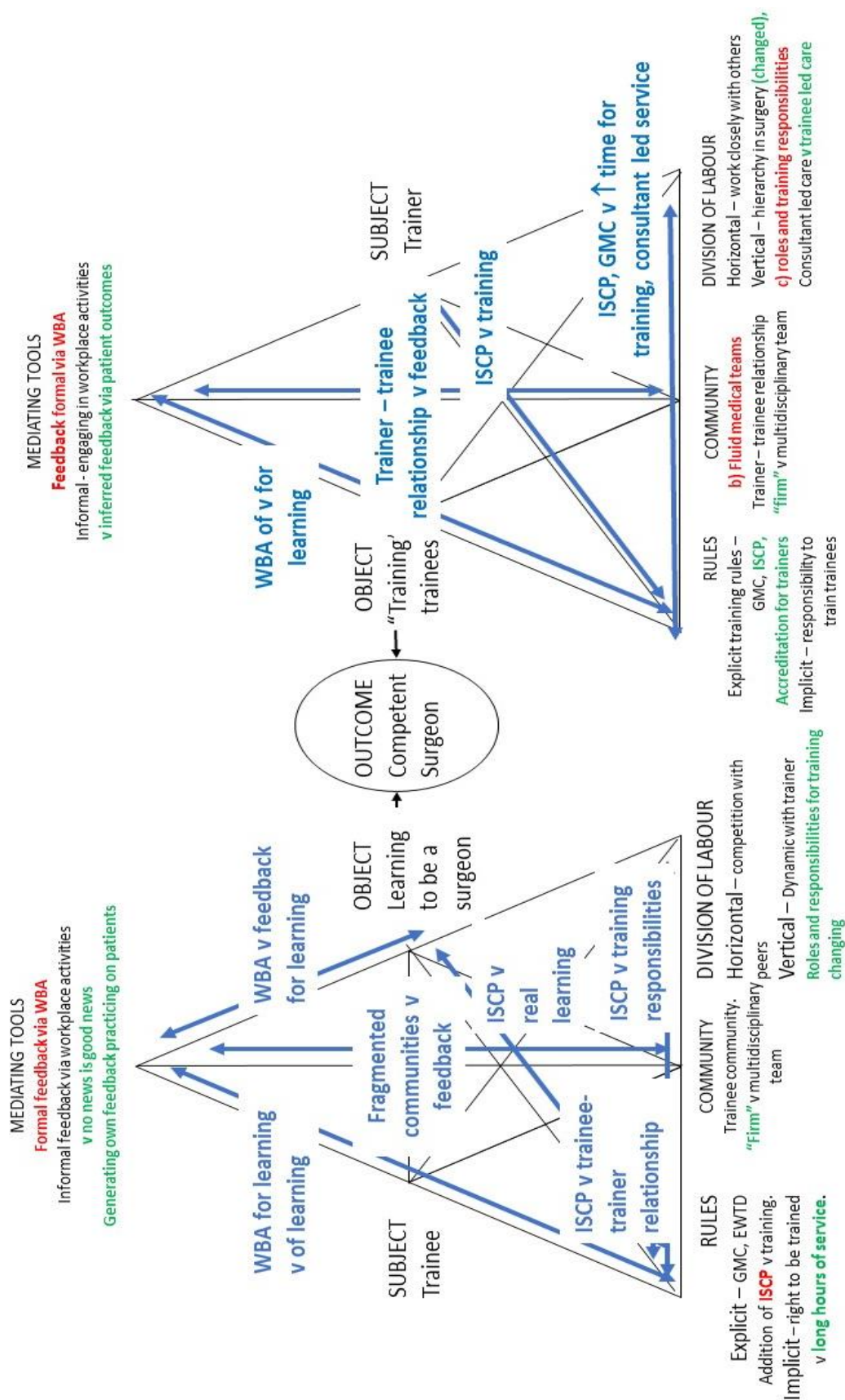
Using Third Generation Activity Theory

Third generation Activity Theory enables comparison of the perspectives of trainees and trainers towards feedback interactions for learning in the workplace from a theoretical perspective. The Activity Systems generated for trainees and trainers in the context of surgical training have been interrogated to look for contradictions between these systems as a source of tensions within training. This work then explored how this related to the role trainees play as clinicians with a responsibility for patient care in the workplace.

Contradictions between Trainee and Trainer Activity Systems.

Contradictions became apparent in relation to the following four points. Contradiction between trainers' provision of feedback (mediating artefact) and trainees' perceptions of ISCP (Rules). The effect ISCP (rules) has on the trainer – trainee relationship (community). Trainers and trainees working as part of a constantly changing team (community) and the contradiction with trainees gathering feedback for change "learning" (object). Finally, trainers provision of feedback (mediating artefact) is in conflict with how trainees choose to seek feedback to enable them to learn and ultimately improve their clinical practice (object) within the context of the "rules" that relate to training (figure 43).

Figure 43. Third Generation Activity System for Trainees and Trainers roles in postgraduate surgical training.



1) Trainers/trainees community v trainee rules; trainer-trainee relationship v WBA (ISCP).

The Activity Systems for trainees and trainers suggested that the rules that govern training, ISCP, was a source of tension with the trainee - trainer relationship.

Trainers were concerned about how providing “honest” feedback using WBA can have a detrimental effect their relationship with trainees. Trainees perceived that if they have a good relationship with their trainer they can gather performance feedback outside of WBA systems and some trainees perceive that trainers are not interested in engaging in feedback conversations with them using WBA.

“Well these are your registrars, you often form a good rapport, they work hard for you in other ways, and sometimes on the basis, you don’t want them brought down on the basis of one operation that might not have been done so well and it maybe that they have lots of other operations that went pretty well but.... And they think they are ready and its and I have down-graded some cases don’t get me wrong. But it is difficult you know there is going to be a little bit of err bad feeling there they will see that actually he thinks I am not quite as good as I think I am” Trainer [B.1].

Versus

“I think you as a trainee have a relationship with your bosses. You know how to liaise with them about feedback and how things have gone. Some will be very adamant and forthright and say I thought that was crap some will be more subtle but I think you get that feedback by interacting with people in an old fashioned way rather than looking at a computer screen” Trainee [C.3].

Additionally

“They don’t, they don’t I mean the CBD’s and the PBA’s I can absolutely see the point of them. I think they are actually quite useful if they are done properly and if you have got time to get feedback from the consultants. But the consultants aren’t interested” Trainee [N.7].

2) Trainers/trainees community v trainee object; Fragmented trainer-trainee relationships v trainees learning through feedback.

The “communities” that trainers and trainees work within are no longer a constant. Medical teams constantly changed meaning that trainers and trainees may not have had the opportunity to build longitudinal relationships, particularly core trainees and specifically in the context of ad-hoc emergency on call arrangements. This variable relationship caused tension with providing and receiving feedback for learning.

“I mean if you develop a rapport with your trainee. You will know where they were last time and what things need” Trainer [D.1].

“I sometimes think it does take time to know somebody before you can start to decide how good they are but I just think that having the whole armoury of this [WBA] but also the more traditional assessment you know the sort of gut feeling about somebody” Trainer [F.1].

versus

“So if its someone you’ve not worked with very often you are unlikely to have a good rapport with them or if its someone who you don’t really respect professionally that highly then that maybe because you don’t respect their clinical judgement and therefore any feedback in your mind any feedback they give you may be impaired to some degree” Trainee [B.5].

“I have found that you generally that my impression has been that you build up a rapport with the team that you are working with and you then start getting feedback from them informally and then you say actually I’ve got to start getting these WPBA would you mind doing then and that’s how you start doing them” Trainee [1.4].

3) Trainer mediating tools v trainee rules; Trainers perceptions that trainees should be pro-active in seeking feedback v trainees’ concerns about the role of formal feedback through WBA as an assessment of learning.

The Activity Systems for trainees and trainers suggested tensions exist between the rules, ISCP, that document trainees learning and feedback and trainers provision of feedback to trainees using WBA.

Tensions exist as trainers wanted trainees to be proactive in asking for feedback before undertaking WBA whereas trainees wanted to know the outcome of feedback (positive or negative) before using WBA to seek feedback. This relates to trainees' perceptions of the "rules" regarding WBA as an assessment for learning.

"Whereas if I know that this is one I would like to consider for a WPBA, which hardly ever happens that someone says that in advance, then I will be thinking along those lines and then we can have a constructive chat after the case. I try and be constructive in an informal way anyway after a case. Say oh you did that well, you did that badly. But to fill out one of these forms you have to be a bit more structured. You have to remember how they did the ileo-colic vessel. How they did that and the problem is not preparing yourself beforehand. That's my main issue." [Trainer B.1]

Versus

"I think that if that's what it comes down to if I was did a did a procedure and I was absolutely shocking at it there's no way I would be asking for an assessment on it. You know I think at my stage now where I perhaps I may have tailored my assessments a bit so they weren't so good at the start so I could show progress by improving in quite a natural way. If I did a shocker now there's no way I'd be saying would you mind doing a DOPS for that." [Trainee B.9]

4) Trainers mediating tools v trainees object, within context of rules; Trainers provision of feedback v trainee learning and change in practice within context of "rules" of WBA as an assessment of learning (ISCP).

Trainers reported concerns about providing delayed and honest feedback either in person or electronically with sufficient detail so trainees could use this feedback to change their practice. This contrasted with trainees' concerns about the "rules" of WBA, for learning or of learning, which led them to avoid what they perceived could be negative feedback using WBA but sought this outside of WBA to help them change their practice.

Trainer; Honest feedback depends on relationship

*"P2: You can't really be a bull in a china shop and as you go on you get to know. I find it easier you know if I know someone to say that was **** wasn't it? And they go" Yeh".*

*Because they know you and they trust you and they sort of say that was**** because we all have good days and bad days”. Trainer [F.4]*

“some of us are probably better than others at dealing with poor performing trainees. I don’t think it is easy I don’t think you are ever taught to do. It can potentially be confrontational and I think some trainees these days actually I wouldn’t say argue back but challenge what you say. Which is why I think having this sort of thing to back up what you might say is probably quite helpful. I guess you do need the time you need that time for them been in post.” [F.3]

Trainer; Honest feedback using WBA is trainer dependent

“P1: I find it hard to do a bad assessment. I’d sooner sit down and say can we have a chat I am abit concerned about that, and this and somebody has highlighted this issue with your practice. But when it is all formalised onto a computer screen and you really want to write close to borderline or not acceptable it is harder to do that with them there

P2: I think I am the opposite

P4: I am the opposite

P2: I think for a difficult trainee it is helpful” [F].

Trainer; Delayed feedback using WBA

“some of the time you haven’t been aware that you were doing a WBA at all and this ticket mysteriously arrives in your inbox saying you have a CBD to complete for trainee whoever and you are not even sure which patient it was about really and you don’t remember a particularly meaningful encounter but you feel very mean if then you don’t do it “[Int.1]

“On a more detailed ward round .. we have that opportunity but it does not seem to happen that way. The culture seems to be right you know 2 or 3 days later sometime months later you get a tick box form which is nonsense.” [2.2]

Trainer; Aware they are being played “trainees playing the game” by seeking delayed feedback

“I definitely think that they wait until they think they have done a job” [Int 1].

"The problem with that of course is that you can cherry pick your PBA's and again if you are worried about things and err I don't think it's the trainers job to go and identify training opportunities I think it's the trainees job" [D.2].

Trainee; Avoiding negative feedback within WBA

"So if you were completely rubbish for instance you just you would just delete the ones which don't go well or you choose the procedures that you are doing well in" [1.3].

"and that's not useful because some of the most useful cases that you should be putting in your PBA are the ones where something has not been quite right but then you put that down and the training committee turns around and says we've got significant concerns about your surgical technique. And you just think what is the point in me saying I am brilliant at all these things as opposed to highlighting things that could have been done better" [1.5].

Trainees; Seeking negative feedback outside WBA for change in practice

"sadly I think they are all a complete waste of time. I don't see any benefit from filling any of them in. Because you can get that feedback from the consultant by just asking. I mean its only for a record for the deanery I suppose" [1.1].

"the reality is most of us get that while we are doing the operations. I er there's no operation that you are doing with you're boss where you don't have "What do you think about doing" or "I do it this way" er" [2.1].

"No. Because I've never had a boss who hasn't hasn't been open and honest at the time. And I'm I'm we are all clever enough to know when we've buggered something up. I think. Because we've seen how things should be done. So often you can and often I'll pre empt it by saying "I made a real hash of that" "yeh you did x". But actually I'd much rather that because thats how its gone" [2.6].

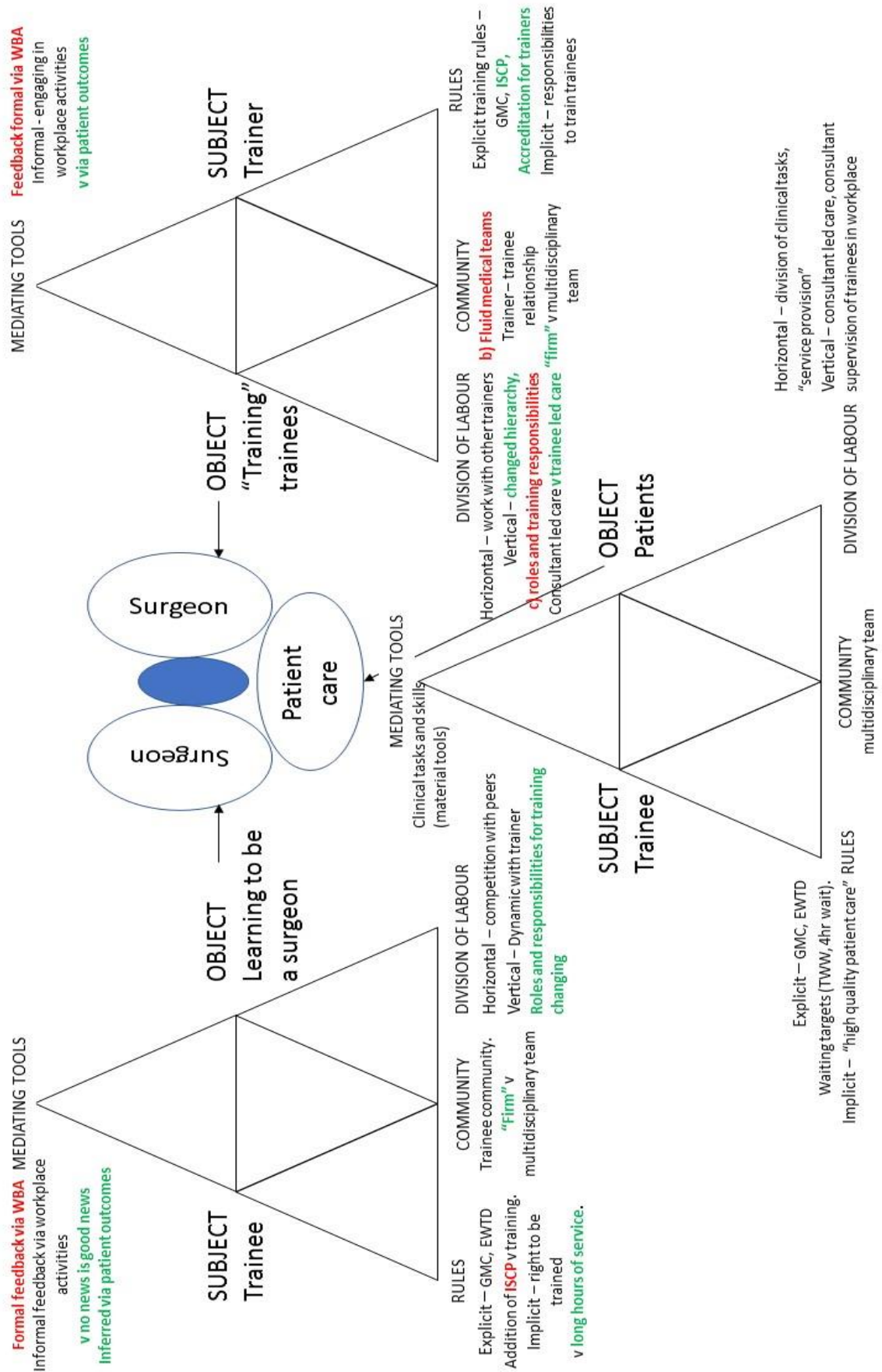
"Which detracts again and almost runs in parallel then to your real learning I suppose where you are actually asking them these questions and trying to improve your knowledge base whereas you probably wouldn't do so if it was a formal CBD perhaps" [B.2].

Contradictions between Trainers and Trainees Activity Systems for training and Trainees' role in treating patients within the surgical workplace.

Postgraduate training occurs within the complexity of the clinical workplace and to consider the role that trainees have in managing patients it was important to explore the interrelationships between trainees and trainers' roles in training but also the role trainees play in caring for patients. Firstly, an activity system was generated which considered the trainees (subject) role in managing patients (object) with the outcome of treating them. This relationship between the trainee and patients is affected by mediating tools, in this situation these are trainees' interactions with patients through performing clinical tasks or skills and the use of material tools. These doctor patient interactions occur within the rules that govern patient care. These include regulatory bodies, GMC, restrictions on junior doctors working hours, EWTD, and patient treatment targets, two week wait for suspected cancer, 4 hour wait in the emergency department. Implicit rules relating to patient care involve managing patient care effectively and to the best of a trainees ability. Trainees work as part of a multidisciplinary community to treat patients. The division of labour within this community is based on a horizontal and vertical division of labour. Horizontal division of labour relates to division of clinical tasks with peers and relates to trainee perceptions of service provision. Vertical division of labour reflects the increasingly consultant led service whereby consultants are increasingly involved in direct patient care and direct supervision of their trainees.

The three Activity Systems were explored and several contradictions as sources of tension between the activity systems were discovered. Contradictions emerged between trainees' role in using workplace tools to treat patients and the rules that govern training and working hours. Trainers role in teaching trainees, "teachers" in conflict with patient related clinical targets. Contradictions between the increasing requirement for a consultant led service, both elective and emergency and the requirements for trainers to train their trainees, formally and informally (also how this relates to the rules that govern training and regulation of training (figure 44).

Figure 44. Activity systems for trainees, trainers' and trainees' involvement patient care.



Contradictions between Activity Systems

1) Trainee patient care mediating tools v trainee training rules; Trainees learning by engaging in clinical tasks versus the rules that govern training.

Trainees learn at work through undertaking clinical tasks in relation to patient management. This can be a source of conflict with the rules which govern training including working hours' regulations (EWTD) in that trainees have less time available to them to learn through practice and are also less visible to trainers in the workplace. ISCP can be a source of tension when it is considered that senior trainees can engage in unsupervised practice but have this "documented" via ISCP is difficult as by definition this practice has not been observed. Trainees are also increasingly vocal about their right to be trained and so the implicit rules of training are changed compared to trainees' historical predecessors who considered training to be a privilege in exchange for long hours of work which current trainees do not work.

"And the other thing is which is difficult as you become more senior you are doing more things by yourself. You know how do you get feedback from a case the boss hasn't been involved with. In general I mean that's irrespective of PBA's, CEX's, DOPS whatever. Do you judge it according to outcome if the patient goes home. I don't know I mean you know you will have access to a lot more cases that you've done with a boss than I will and that somehow reflects badly on me because the bosses aren't doing them with me and therefore can't really do a PBA. I mean I deem it if the boss has left me to do it presumably they feel I'm competent to do it. But that's actually completely different to what PBA's are trying to achieve." [2.1]

"So until you leave them to do things on their own they won't learn." [2.3]

2) Trainer object v trainee patient care rules; Trainers aim to train trainees v clinical care of patients with patient driven targets.

Trainers role in training trainees can be in conflict with the rules of targets relating to patient care. These rules include the 4 hour wait in ED (Emergency Department), TWW (Two week wait urgent cancer) referrals to clinic and subsequent treatment targets. All of these rules mean that the time available for trainers to engage in training their trainees has to be balanced against the time pressures of patient related targets.

“The thing is it is not just the time pressures for consultants though either. If you sit in the middle of a list trying to do a WPBA you’ll get the anaesthetist moaning at the consultant because he wants something. The staff nurses saying Oh this is taking loads of time you know you are letting x do the case. You know most of the late cases are either cancelled because of bed pressures or the staff are complaining that the list is running behind because the trainee is doing the case.” Trainee [N.4]

“I think they are probably useful at SHO level but at registrar level. It is very rare that you have any time in clinic a) to do your own work yet alone to get the consultant to then observe you seeing new patients, assess you on that there is just not enough time.” [G.2]

“They don’t seem to have any time that is allotted to do this whereas general practice is very good at doing all the. If you look at all their paperwork they do it’s done perfectly because the GP’s actually have got time they’re patient numbers in any surgery session are reduced they have got time to go and sit there and watch that trainee do something. Whereas you know if you have a busy consultant surgeon with all of these 18 week pathways on one side and you haven’t got time to just put two cases on an all day list and you watch every little bit that the trainee does.” Trainee [E.1]

3) Trainee patient care division of labour v trainer object; Trainees role in the provision of patient care v trainers’ role in training trainees, and its relation to the rules that govern training.

Trainees work within the clinical workplace has changed dramatically over the last 10-20 years. The vertical hierarchy of surgery has been flattened with trainees working fewer hours on a shift basis, compared to a traditional on-call arrangement. Therefore, trainees are working fewer week daytime hours where trainers are traditionally (usually) engaged in elective clinical work. Trainers are taking a much more active role in the day to day management of elective and emergency patients compared to consultants when they themselves were trainees. In conflict with this change in working patterns, trainees’ are also placing more demands on trainers, in terms of requiring formal feedback through WBA systems and more formal educational supervision arrangements. The rules of training have also changed meaning that both trainees and trainers are required to engage in frequent formal interactions using ISCP.

Trainees perception of trainers’ roles

"they are getting the opposite they are getting massive service commitment from the hospital so they are incredibly busy and every time you ask them for WPBA its seen as a favour for you to do that assessment..." Trainee [E.3]

"They can be useful if you have got a trainer that actually spends time giving you some feedback which is very rare because they are so busy and they have got a million things to do." [N.1]

Trainers perception of trainees' role

"This is something that they know how many they have to do and so I think when we were doing the ARCP's we didn't have a huge amount of sympathy for people who hadn't done enough because it is something from the outset that you know this is what you have got to do. It is as simple as that you need this number and unless we as a group of trainers aren't doing them because we ignore the emails or we are too busy to sit down with the trainee then it is something that they have to do." [F.2]

"the main problem I think is the variability in who is using the system. You know some people will say yes I'll sign anything off for you errm some people will be very good and do proper formal feedback and there is no way to tell in the tick box form who sat down and done it properly and who has just you know sent it and got it ticked and its I agree if it's done properly and everyone's got the time to sit down and do it properly then there's no problems its excellent for everyone involved." [B.1]

Discussion

This study found

In using third generation Activity Theory this study has been able to explore and contrast trainee and trainer perspectives on feedback and learning within the postgraduate surgical workplace. This work shows that the dual role of WBA as a mediating tool, assessment for learning, and a rule, assessment of learning, causes tensions within the separate Activity Systems for both trainees and trainers. Competency based training, ISCP, has led to tensions as trainers attempt to balance their roles of assessor v coach (mentor) when they engage with trainees to convey feedback for change in trainee practice. In the context of ever changing medical communities undertaking meaningful feedback interactions that can lead to change in trainee practice is not easy. Trainers think that trainees should be proactive in seeking feedback using WBA but trainees concern about the role of WBA as an assessment of learning precludes them from doing so. Finally, the ways in which trainees and trainers use WBA to seek and provide feedback for learning is undermined by the perception by trainees that WBA represent an assessment of their learning and they are therefore highly reluctant to use these tools to gather feedback which they could use to improve their clinical practice.

The role that trainees play in engaging in patient care in the workplace is a source of tension with trainees and trainers roles in training future surgeons. Trainees responsibilities for patient care, undertaking clinical tasks and performing clinical skills, was constrained by the rules that govern training including working hour restrictions and the opportunities and ability to undertake unsupervised practice. Trainers ability to engage in clinical activities through which they can provide feedback for learning with trainees can be strongly affected by the constraints of patient driven targets and the pressures of time this places on trainers. Lastly, a reduction in trainee working hours and trainers increasingly active role in patient care causes tensions with increasing regulation of training and the formal educational responsibilities of trainers, delivering formal feedback using WBA and completing portfolio appraisals with trainees.

Comparison with the existing literature

Trainers and trainees describe that the trainer-trainee relationship is important for teaching and learning in the clinical workplace. This is consistent with all published feedback literature (64, 65, 69, 71, 72, 74, 75, 80). Trainees described that the rules that govern training, ISCP, caused tension with trainees' relationship with their trainer. Trainees described feeling that they are asking "a favour" or uncomfortable when asking for

feedback and WBA from trainers. Trainers however felt trainees needed to be proactive in seeking feedback this is consistent with previous work (71). So, trainee uncertainty and trainer ideals that trainees should be proactive was a source of tension when completing WBA. To compound this, trainees struggled to gather feedback for change when they had inconsistent or short term relationships with a variety of different trainers. This did not allow trainees the opportunity to develop longitudinal or trusting relationships with trainer which are important factors described by the literature (65, 80, 81). However, when trainees perceived that they had a positive longitudinal relationship with their trainer they often chose to gather feedback outside of WBA systems.

Trainers reported anxieties in providing negative feedback to trainees because they felt they did not have a strong educational relationship, due to working hour arrangements, because they were concerned about writing “honest” comments on trainees WBA portfolio and concerned that there wasn’t a culture where criticism is acceptable within surgical practice. In contrast, surgical trainees stated that negative feedback was the most important feedback they received in terms of changing their practice but that they preferred to gather this feedback informally outside of WBA systems for fear of the summative, assessment of learning, consequences of seeking this feedback from within the WBA system. Taken together many valuable opportunities for meaningful feedback interactions between trainers and trainees using WBA were lost for different reasons from both parties.

The ISCP system designed to help trainees gather performance feedback is shunned by trainees who would rather gather this feedback outside of WBA and therefore don’t use WBA “properly”. This therefore disengages trainers who may try to use “properly” as trainees often fail to state their intent to undertake WBA either prospectively or by completing WBA in a timely fashion so trainers are not able to prepare or consider trainees’ performance in sufficient detail to provide meaningful and accurate performance feedback for change.

The complex inter relationship between the role of WBA as an assessment for learning and of learning and the ways in which trainees and trainers interact to seek and provide feedback within a workplace setting has not been considered from the theoretical perspective of Activity Theory to date.

Previous quantitative work suggests that trainees perceive WBA represent an assessment of learning compared to trainers (Section 2), (116). Other limited quantitative studies suggested that trainers were disengaged from the process of using WBA (134, 180, 181). But these studies merely described differences in questionnaire scores. Qualitative analyses of trainees use of WBA in a formative setting suggested that trainees have anxieties in seeking performance feedback using WBA (65) but that some trainees overcome these anxieties to go onto seek feedback for learning often when they had a positive relationship with their trainer. A study with undergraduate veterinary students suggests that trainees weigh up the personal pros and cons, in terms of image and ego costs, before they act to seek feedback (80). Work exploring communication skills training and assessment using mini-CEX, in surgical and GP trainees, suggested that when trainees perceived that there was no link between their learning goals and feedback received trainees were unable to use feedback to change practice but were driven to use WBA for a perceived summative, of learning, purpose (75). These data are consistent with this work in suggesting trainees make judgements about the personal benefits and risks to seeking feedback before they do so and this can relate to a supportive relationship with their trainer.

Different studies have explored trainers' role in feedback provision to trainees. These studies are in agreement with this work in suggesting trainers have reticence to engage in delivering critical feedback to trainees (69, 72-74). Previous studies that directly compared WBA use did so in a formative setting (71, 149) and these did not delineate the nuanced relationship between the use of WBA as assessments of learning and trainees and trainers feedback interactions described here.

Within the complex context of providing patient care trainees' clinical responsibilities to patient care affect their opportunities to be trained. Trainers perceptions that they engage in an increasingly active role in the day to day management of their patients was a source of conflict with the increasing requirements placed on them as they negotiate the competency system of postgraduate training with their trainees. This strong sense of change in the division of labour within surgical communities and significant changes to the ways that surgical trainees work, challenges the ways in which surgical trainees have been traditionally trained. Surgical training historically followed an apprenticeship model, where trainees learnt surgery from working with a series of different surgeons and learning the craft of surgery through participating in workplace activities. This conceptually sits very

comfortably within the socio-cultural theories of learning of which Activity Theory is part. Lave and Wengers work around “legitimate peripheral participation” is also important to consider here (51). The idea that trainees can learn by being in the workplace and go through a process of observing the work of their trainers to gradually increasing their involvement within the community in which they work sits well within a surgical domain. It mirrors the traditional apprenticeship model of training and is the way that today’s trainers were taught or trained. This model becomes more difficult to maintain as trainees spend fewer hours in the workplace often working with many more trainers simultaneously than was previously the case. This means trainees may find it more difficult to develop into their role as participants within the surgical communities in which they work. Trainers are also undertaking more of the clinical tasks that were historically perceived to be part of trainees’ roles and responsibilities e.g. managing emergency patients. This fragmentation of the “community of practice” in surgery is coupled with changes to the rules of surgery where trainers are under increasing pressures to engage in the current competency based model of training. From this perspective, it is interesting that overall trainers appear to consider this competency based model of training and WBA are a positive move towards enabling trainees to gather feedback for learning (Section 2). This probably speaks of their own mixed experiences as trainees.

Limitations

Using Activity theory to interpret these results has necessarily entailed compartmentalisation of trainees’ and trainers’ comments and perceptions into the different components of activity system, and this may have created unintended consequences as this whole system is artificially separated. The exploration of the historical perspective of feedback and learning was undertaken by analysing ad-hoc comments as this area was not part of the original focus group guide, however these spontaneous comments were common and resonated with participants, hence found their place in the analytic model adopted. Finally, this work represents a single researchers’ interpretation of the data though this has been discussed with two other researchers (TP, DM). In exploring these data the researchers are mindful that all have competing perspectives to WBA, feedback and learning in the workplace. With one researcher being currently in training and experiencing WBA from the trainees’ perspective and the two other researchers having a role as trainers completing WBA, although in debating and integrating these perspectives the researchers hope to present a balanced analytical view.

Practical Implications

Trainees need to be open in their intent to seek feedback using WBA in a proactive manner. Trainers need to foster an atmosphere where trainees are able to do this. Both parties need to be prepared for, and engage in, honest interactions about trainees' performance and provide credible specific information for change. To facilitate this, it is important that the continued use of WBA as an assessment for, and of, learning is clarified. Whilst confusion exists, trainees will continue to "game" the system. Trainees are currently not trained in seeking feedback and engaging in feedback conversations with their trainers and including this in a mandatory element of training for trainers and trainees could be of real benefit.

Conclusion

Trainees and trainers strive to train future surgeons mediated by feedback for learning. This is embedded within the rules which govern training, working and system rules. Medical communities are increasingly fluid and medical practitioners work within larger multidisciplinary teams. The division of labour within surgery has changed since trainers experienced training as trainees themselves. Contradictions are apparent within components, between components and between the Activity Systems for trainees, trainers' and trainees' role in engaging in patient care. Fundamental tensions are placed on trainees' and trainers' abilities to engage in training within the workplace due to tensions with the "rules" of training and patient care, changes to medical communities and the division of labour within surgical teams.

9. Discussion

Introduction

This work sought to explore surgical trainer and trainee feedback interactions in the workplace. To ground this study within authentic clinical practice feedback interactions within and outside of workplace based assessment were the focus of this work. The postgraduate workplace has undergone a period of major transition in the past decade with a move to a competency based model of training (117) and changes to the ways of working due to junior doctor working hour restrictions (20).

Feedback has been traditionally described as a transmission of feedback from trainer to trainee or from teacher to learner (58). More recently researchers in the higher education domain have called for feedback to be re-conceptualised as a two way communication with the learner taking a leading role in gathering feedback (60). Others have suggested that trainers and trainees should form an “educational alliance” based on work from the psychology literature (146). Various studies have considered the process by which learners gather feedback (64-66) from different perspectives based on quantitative data and qualitative practice orientated findings. All of these consider feedback to some extent to represent a linear process rather than having a central role for the interaction between trainer and trainee. In this work trainers and trainees were considered to have an equally active role in feedback interactions. The trainer’s role in the provision of feedback and the process by which they rate trainees is well documented in the literature (69-74, 125, 149). However, how trainers’ perceptions of WBA relates to their feedback interactions with trainees in a practice setting is yet to be explored. Trainees can actively engage in seeking feedback but this concept, though much explored in the field of organisational psychology (66, 111, 135), is a relatively unexplored area within medical education with a single quantitative (79) and qualitative (80) paper within the literature. Trainees make value judgements before they chose to use feedback or otherwise. This in part depends upon the perceived credibility of their trainer and the trainer – trainee relationship (54, 81).

Feedback is important for change in clinical practice (56, 57) and WBA represent an opportunity for trainees to gather specific, timely feedback about their performance so they can improve (change) their clinical practice. Though WBA have a primary purpose as an assessment for learning, they also have a role as an assessment of learning (12). As such they represent an assessment of trainees performance in the workplace rather than an assessment of competence in a controlled setting (11). However, the literature reports

tensions around feedback and the use of WBA. In a systematic review of role of WBA in UK postgraduate education the evidence for their educational impact was lacking (90). A further review, based on questionnaire data, of trainees' and trainers' perceptions of WBA stated problems with the implementation of WBA relate to poor understanding of the purpose of WBA, insufficient time to undertake WBA and inadequate training of trainers (92). To date no work has directly explored how WBA affect the ways in which trainers and trainees engage with each other in feedback interactions within the workplace.

The question which remained unanswered by the current literature is: How do WBA impact on feedback interactions, between surgical trainers and trainees, in the postgraduate workplace?

Methods

This work used a mixed methods approach to answer the research question posed. This approach allowed the researcher the opportunity to gather not only generalizable quantitative data, but also to use this to guide a deeper exploration of the issues around WBA and feedback through a qualitative approach. A synthesis of the sections of this work will be discussed in sequence as the analysis of, and reflection on, one section led to the development of the next.

Summary of Results

Basic demographic results

Initially, in section 3, quantitative data was collected to answer the following research questions: **What are surgeons' and surgical trainees' perceptions of WBAs along a continuum from an assessment for learning to an assessment of learning?**

What are surgeons' and surgical trainees' feedback practices around the delivery and value in using WBAs?

This study recruited participants from 23 sites in England, Wales and Scotland with a 76% response rate for trainees (178/235 from 23 sites) and 62% response rate for trainers (147/239 from 20 sites). This work found that trainees perceive WBA represent an assessment of learning compared to their trainers. Trainers tend to perceive they provide feedback to trainees more often than trainees perceive they receive it. Delayed feedback seeking by trainees affects the effectiveness of feedback (trainer recall and the feedback

obtained electronically is of poor quality). However, the reasons trainers and trainees held these perceptions could not be discerned further from this data.

Trainee feedback seeking behaviour in the context of WBA

As part of the quantitative phase of data collection trainees feedback seeking behaviour in the context of WBA was investigated, section 4. This work built on that done by others investigating residents feedback seeking behaviour in the context of night shift working (79) based on work from organisational psychology (111). This section sought to answer the questions.

What are surgical trainees' feedback seeking behaviours (feedback inquiry and monitoring) in the context of WBA?

Do these feedback-seeking behaviours relate to engagement in the use of WBA?

In the context of WBA can we distinguish mediating and predictor variables which relate to surgical trainees' feedback seeking behaviour?

Quantitative data was used to develop a structural model of trainee feedback seeking behaviour in the context of WBA. This model suggested that trainees who value feedback seek feedback by engaging in feedback inquiry and monitoring. Valuing feedback is a function of learning goal orientation and effective supervision. Performance goal orientation is linked to the learner perceiving high costs to feedback. Supervision is important for feedback seeking outside of WBA. Therefore trainees do engage in using WBA to seek feedback but they make decisions about the personal benefits and costs to feedback before they do so. Also, trainees' perceptions of how feedback costs relate to the mandatory nature of WBA and in what circumstances trainees overcome their anxieties to seek feedback remained unanswered questions.

"Playing the Game"

The initial pilot quantitative data and interim analyses of the main study data guided the qualitative phase of this work. Section 5 explored surgical trainees' perceptions of feedback and WBA within the workplace and sought to answer the following:

In what ways do surgical trainees perceive WBA as an assessment for, and of their learning?

How do perceptions of WBA influence opportunities for feedback between surgical trainees and trainers?

How do trainees translate feedback encounters both within and outside WBA into their subsequent clinical practice?

A template analysis approach was used to analyse data collected from ten focus groups conducted in four geographical regions of England and Wales. The major themes identified from this exploration included purpose of WBA, choosing when to do WBA, trainee-trainer relationship, Change in practice and time. Trainees' perception of WBA as an assessment of learning led them to "play the game" and seek positive feedback and avoid negative feedback in the context of WBA. Outside of WBA trainees sought negative feedback which they perceived to be important for enabling change in practice. The trainee-trainer relationship was fundamental to the ways in which trainees sought feedback. This section began to explore the ways in which trainees choose to seek feedback within and outside of the WBA system. However, why trainees are motivated to seek feedback in some situations and not in others is not fully explained by this analysis and clearly this also only represents only one side of any feedback interaction and must be considered in relation to the perceptions of trainers.

Surgical trainees "self-motives" for seeking feedback

A further exploration of this trainee qualitative data using a "self-motives" theoretical framework was undertaken in section 6. This self-motives framework is rooted in the organisational psychology literature and suggests that individuals are motivated to engage in seeking feedback based on one of four self-motives (68). These include self-assessment (to obtain accurate information about the self), self-improvement (to improves one's traits, abilities and skills), self-enhancement (to enhance the favourability of self) and self-verification (to maintain consistency between ones central self-views and new self-relevant information) (68). Using this framework, we sought to answer the following questions.

Can a self-motives framework of feedback seeking explain why surgical trainees choose to seek feedback, in the context of WBA, within the clinical workplace?

Do contextual factors affect the circumstances in which specific self-motives predominate?

A framework analysis approach was used to apply this framework to these data. The results of this analysis were that trainees feedback seeking behaviour in the context of WBA can be related to a self-motives framework. Trainees' feedback seeking within WBA related most strongly to motives of self-enhancement and self-verification whereas outside of WBA trainees report self-improvement and self-assessment motives for seeking feedback. Where trainees perceived WBA represented an opportunity for them to learn, assessment for learning, they described a self-improvement motive towards seeking feedback. Where trainees perceived WBA represented an assessment of their learning trainees spoke about tensions between the self-motives of self-enhancement and self-improvement. This section described that trainees' motivations for seeking feedback as well as relating to self-motives were rooted in the context in which WBA were used and for what perceived purpose, as an assessment for learning or of learning. This importance of contextual factors will be revisited in the final section.

"A bit of honest feedback" v "playing the game".

Trainers' perceptions of feedback within the workplace both within and outside of WBA were explored in section 7. This section sought to explore some of the unanswered questions posed by the initial quantitative data collected.

How do trainers' perceptions of WBA as an assessment for, and of, learning affect how they engage in feedback interactions with trainees in the clinical workplace?

A template analysis was utilised to explore this qualitative data collected from six centres in a single region of England because this enabled the use of a small number of "a-priori" themes based on the results of the quantitative trainer questionnaire data. The major themes identified included purpose of WBA, using WBA "properly" (meaning contemporaneously), the culture of WBA and the trainer-trainee relationship, all affected how trainers engaged in using WBA with trainees. These were situated within the themes of clinical context and time. These findings mirrored some of the findings from the prior trainee qualitative data analysis in this research. In order to integrate these two sides of the feedback interaction, a further comparative analysis of the trainee and trainer qualitative data was required.

More rules less team!

The final results section, 8, sought to comparatively explore trainees' and trainers' perceptions of WBA and feedback situated within the clinical workplace. To undertake this comparative exploration this section used the theoretical approach afforded by Activity Theory. This theoretical perspective places activity at the centre of workplace learning (50). The theoretical position argues that learning takes place through engagement in workplace activities. This resonates with postgraduate workplace learning where learning does happen by engaging in performing clinical activities in relation to patient care. The use of Activity theory situates the learner and activity within the context in which the learning takes place. This is important as throughout the initial qualitative phases of data collection contextual factors have been highlighted as being important. This section sought to answer the question.

Can Activity Theory help explore the role of feedback and WBA within the complex cultural environment of the postgraduate surgical workplace?

Can Activity Theory provide a theoretical framework to encompass the perceptions and behaviours of the surgical trainee and trainer for learning and patient care?

Both the trainee and trainer qualitative data was utilised to generate Activity Systems of learning to be a surgeon and training (or teaching) surgical trainees within the context of the surgical workplace. These Activity Systems were explored separately to look for tensions within components, between components and with reference to historicity. Using third generation Activity Theory these Activity Systems were combined with an Activity System relating to the role trainees play in the care of patients. The results of this analysis suggest that tensions exist between the rules that govern training, ISCP, and the trainee - trainer relationship. Constantly changing "medical communities" (i.e. firms or teams) create tensions when trainers and trainees attempt to engage in delivering and receiving feedback for learning. Tensions also exist as trainers want trainees to be proactive in seeking contemporaneous feedback but trainees want to know the sign of feedback, positive or negative, before they engage in using WBA to seek feedback. In relation to the trainee's role in patient care, tensions arose due to trainees learning through undertaking clinical tasks which is in tension with a restriction on trainee working hours. Trainers' roles in training trainees can conflict with the rules of targets relating to patient care. A further source of conflict is evident between the changes in trainees' working patterns and the

increasing demands trainees' place on trainers, in terms of requiring formal feedback through WBA systems and more formal educational supervision arrangements.

Practice Implications

Trainees need to be more proactive in articulating their wishes to seek feedback and secondarily complete WBA contemporaneously. This would help trainers to deliver effective performance feedback to trainees. Both parties should strive to create an environment and relationship where feedback can be sought, given and received in a constructive manner to guide future learning. This requires continued faculty development for trainers to help them overcome their concerns about "scoring" trainees "honestly" so that they can provide learner centred feedback. This work supports development of training for trainees to empower them to seek and utilise the appropriate resources available to them to gather feedback including using WBA effectively. Regulatory panels (ARCP boards) should be mindful of the message they deliver to trainees by utilising WBA as an assessment of learning. It would be useful to consider clearly defining the purpose for which WBA are used and being mindful to consider that, as with the foundation programme, some WBA could be undertaken for purely formative purposes.

Conclusion

Feedback interactions in the context of WBA in the postgraduate workplace are highly complex. Trainees and trainers both play an active role in these interactions and can choose to engage in meaningful feedback interactions using the structured approach that WBA offer. However, the use of WBA to gather feedback for learning is hindered by perceptions by trainees more than trainers in that WBA represent an assessment of what they have learnt. Trainees feedback seeking behaviour is affected by their perceptions of the personal benefits and costs to feedback. These relate to predictive factors of goal orientation and supervisory style and trainees "self-motives" for seeking feedback within and outside of the WBA system. The ways in which trainees' use WBA to "play the game" is at odds with trainers' apprehensions about providing trainees with "honest feedback". Within the culturally complex setting of the workplace tensions arise between trainees and trainers' roles in engaging in training the surgeons of tomorrow balanced against patient care within current healthcare systems.

Additional Overall Conclusion

Trainees and trainer can both choose to play an active role in feedback interactions in the clinical workplace. The dual purpose of WBA as an assessment for and of learning leads to tensions in their use and effects feedback exchanges. The implications of this work are that current assessment systems are failing in their role as a vehicle for trainees to gather effective information about their performance to learn from and improve their clinical practice.

Individual trainee and trainer factors are heavily dependent on the clinical context in which these interactions occur. The trainee-trainer relationship, perceptions of the purpose and use of WBA, time and culture within units affecting such interactions within and outside workplace assessment systems.

Challenges to feedback interactions arise due to changing and varied trainee-trainer relationships, trainers having to balance their roles of assessor versus coach. Trainers described that they thought trainees should be proactive in seeking feedback but trainees expressed concerns about the purpose of WBA as an assessment of learning often precluded them from using WBA to gather information for changing clinical practice.

Within the clinical environment trainees' role in managing patients creates tensions with their learning in the workplace though working and learning are inseparable. Trainees opportunities for learning and feedback are constrained by the rules of training, including working hours regulations, consultant led care and patient related outcome targets. Fragmentation of the surgical "community of practice" has been coupled with changes to the rules of practice. Many of the contextual tensions described relate to the formalisation of a competency based model of assessment which have been superimposed on a traditional apprenticeship model of training which remains in practice but squeezed into a shorter time frame. These tensions between assessment systems and the ways of learning in surgery are born out in the relational dynamics between trainees and trainers as they attempt to negotiate their way through learning in the surgical workplace.

How Should Practice Change

Practice should change by providing training for trainees to enable them to feel empowered to seek out and use feedback in the workplace. This could be supported greatly by clarification of the purpose of workplace assessment systems. This is because a

major source of tension in trainees and trainers feedback interactions related to the dual purpose of WBA and the effect this had on when and how feedback interactions occurred. Training rotations should be amended so that trainees and trainers have opportunities to build longer training relationships. Trainees should be afforded the opportunities to engage in learning through undertaking workplace activities. This would enable both parties the chance to seek and deliver feedback which could promote change by knowing how trainees are progressing, areas of strength and areas to be improved without interactions being value laden.

Those who develop surgical training programmes need to consider that current curriculum and assessment systems are not fully align with current training within the workplace. The current structure of postgraduate training to date remains largely based on an apprenticeship model of training. This model is then assessed within a competency based assessment system and discord between the ways in which surgical trainees learn and are assessed may help explain the tensions around feedback and assessment systems described by this work. As the Royal Colleges of Surgeons consider piloting changes to core surgical training they need to be mindful of how the workplace learning needs of trainees align with to projected outcomes of training, a competent elective and emergency general surgeon, using the current competency based curriculum and assessment systems.

Implications for Research

This work highlights the individual and contextual tensions which currently arise in the relational dynamics between trainees and trainers around feedback and assessment systems in the clinical workplace. Further research could explore how trainees and trainers engage in feedback within the workplace using an observational approach. Ethnography could offer the opportunity to observe feedback interactions within their natural setting overcome the potential of bias due to self-reporting and perceptions as in this current study. Furthermore, this approach could be used in conjunction with linguistic or discourse analysis to explore the role of language use within such interactions.

An alternative plan of research could include the development and evaluation of a training programme for trainees. With the aims of improving their abilities to seek and use performance feedback effectively and improve their understanding and use of the outcomes based model of curriculum and assessment, ISCP.

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Appendix 1a

26 April 2012

Warwick
Medical School

PRIVATE

Mrs Anne Gaunt
Clinical Education Fellow
Medical Teaching Centre
Warwick Medical School
Coventry CV4 7AL

Dear Anne,

Study Title and BREC Reference: *The formative role of workplace based assessments 190-03-2012*

Thank you for submitting your revisions to the above-named project to the University of Warwick Biomedical Research Ethics Sub-Committee for Chair's Approval.

I am pleased to confirm that as Chair I am satisfied that you have met all of the conditions and your application meets the required standard. Your study has been approved in principle by BREC.

'Approved in principle' means that we are happy that everything in the study is correct but it means that you cannot start work in the different NHS Trusts until we receive written approval from the 15 NHS Trust R&D departments listed overleaf because the appropriate permissions must be in place first. We are happy that as you post each NHS Trust R&D Department letter of approval to Clair Henrywood (address below), you will be able to start work in that NHS Trust. Please do not start work in an NHS Trust without first sending the approval/permission letter to BREC care of Clair. Clair will e-mail you say when she has received each letter so that you know where you are.

Once we have all signed letters from the Trusts' R&D departments giving their approval, we will award full and final approval to your study within a matter of a few working days.

Yours sincerely,



Professor Jane Barlow
Chair
Biomedical Research
Ethics Committee

Copy:
File
Dr Deborah Markham

**Biomedical Research Ethics
Subcommittee**

Enquiries: Clair Henrywood, BREC
Administrator, B032, Medical
School Building, Warwick Medical
School, Coventry, CV4 7AL.
Tel: 02476-528207
Email: brec@warwick.ac.uk

THE UNIVERSITY OF
WARWICK

Appendix 1b

1 October 2012

Warwick
Medical School

PRIVATE

Mrs Anne Gaunt
Clinical Education Fellow
Medical Teaching Centre
Warwick Medical School
Coventry CV4 7AL

Dear Anne,

Study Title and BREC Reference: *The formative role of workplace based assessments 190-03-2012 AM01*

Thank you for submitting the above-named project to the University of Warwick Biomedical and Scientific Research Ethics Sub-Committee for Chair's Approval of a minor amend (small amends to questionnaires) to this previously approved study.

I am pleased to confirm that the change that you wish to make to this study has been reviewed by me in my capacity as BSREC Chair and the change you wish to make has been approved. This means that full approval is granted and you may continue with your study.

I take this opportunity to wish you success with the study and to remind you any further minor or substantial amendments require approval from the committee before they can be made. Please keep a copy of the signed version of this letter with your study documentation. The committee also requires you to complete an End of Study Declaration Form when you reach the end of your study: this form has been e-mailed to you.

Yours sincerely,



Professor Jane Barlow
Chair
Biomedical Research
Ethics Committee

Copy:
File
Dr Deborah Markham

**Biomedical Research Ethics
Subcommittee**

Enquiries: Clair Henrywood, BREC
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Appendix 2a. Trainee questionnaire feedback and workplace based assessments (WBA).

Please ring the most appropriate response or insert a number.

Male v Female ST6+/SPR	Current grade	FY2	CT1-2	ST3-5
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How many of the following WPBA did you complete as a trainee in your last academic year?

CBD Mini CEX Surgical DOPS PBA

How easy do you find it to complete the required number of assessments?

VERY EASY 1 2 3 4 5 6 VERY DIFFICULT

How much do you think WPBA represent an opportunity for you to learn in the workplace?

NOT AT ALL 1 2 3 4 5 6 A LOT

How much do you think WPBA represent a formal test of what you do at work?

NOT AT ALL 1 2 3 4 5 6 A LOT

Please indicate on the scale below where you think WPBA's sit between a learning and assessment tool based on your experiences in using these tools?

LEARNING 1 2 3 4 5 6 ASSESSMENT

How much time do you spend receiving feedback in relation to WPBA?

	Nil	<10 minutes	10 – 20 minutes	➤ 20minutes
CBD				
Mini CEX				
PBA				
Surgical DOPS				

Where does the feedback take place? in public one to one electronically

How long after WPBA are undertaken does feedback occur?

	very infrequently	infrequently	sometimes	frequently	very frequently
Immediately	1	2	3	4	5
<24 hours	1	2	3	4	5
1 – 7 days	1	2	3	4	5
>1 week	1	2	3	4	5

Feedback

Do you think that you receive feedback when completing WPBA? Yes v No								
Do WPBA promote the opportunity for feedback? Yes v No								
Do you use any feedback you are given when you are doing the same task again? Yes v No								
How often do you seek,								
LOT	Positive feedback	NOT AT ALL	1	2	3	4	5	A
	Negative feedback	NOT AT ALL	1	2	3	4	5	A
LOT								

Goal orientation

Strongly disagree Disagree Mostly Disagree Mostly Agree Agree Strongly Agree

13 item instrument validated by vandeWalle (131)

cronbachs alpha >0.8

1	I am willing to undertake challenging cases that I can learn a lot from.	1	2	3	4	5	6
2	I often look for opportunities to develop new skills and knowledge.	1	2	3	4	5	6
3	I enjoy challenging and difficult tasks at work where I'll learn new skills.	1	2	3	4	5	6
4	For me, development of my ability is important enough to take risks.	1	2	3	4	5	6
5	I prefer to work in situations that require a high level of ability and talent.	1	2	3	4	5	6
6	I'm concerned with showing that I can perform better than my co-workers.	1	2	3	4	5	6
7	I try to figure out what it takes to prove my ability to others at work.	1	2	3	4	5	6

8	I enjoy it when others at work are aware of how well I am doing.	1	2	3	4	5	6
9	I prefer to work on projects where I can prove my ability to other people.	1	2	3	4	5	6
10	I would avoid taking on a new task if there was a chance that I would appear incompetent to other people.	1	2	3	4	5	6
11	Avoiding a show of low ability is more important to me than learning a new skill.	1	2	3	4	5	6
12	I'm concerned about taking on a task at work if my performance would reveal that I had low ability.	1	2	3	4	5	6
13	I prefer to avoid situations at work where I might perform poorly.	1	2	3	4	5	6

**My supervisors (consultant) are,
Instrument validated by Stogdill (139)
Used in Medical Education setting (79) with reliability
indices – cronbachs alpha 0.87, 0.76**

		Strongly disagree	Disagree	Mostly Disagree	Neither disagree or agree	Mostly Agree	Agree	Strongly Agree
1	Friendly and approachable.	1	2	3	4	5	6	
2	Does little things to make it pleasant to be a member of the surgical team.	1	2	3	4	5	6	
3	Puts suggestions made by the surgical team into operation.	1	2	3	4	5	6	
4	Treats all of the surgical team as their equal.	1	2	3	4	5	6	
5	Gives advance notice of changes in timetable.	1	2	3	4	5	6	
6	Looks out for the personal welfare of their trainees.	1	2	3	4	5	6	
7	Is willing to make changes to patient management.	1	2	3	4	5	6	
8	Helps me to solve problems I am confronted with during my work.	1	2	3	4	5	6	
9	Helps me to make my work enjoyable.	1	2	3	4	5	6	
1	Let's surgical team members know what is expected of them when undertaking a WPBA.	1	2	3	4	5	6	7
2	Decides what shall be done and how it shall be done.	1	2	3	4	5	6	7
3	Makes sure that their part in the team is understood by the team members.	1	2	3	4	5	6	7
4	Assigns team members to particular tasks.	1	2	3	4	5	6	7
5	They are clear about acceptable standards of performance.	1	2	3	4	5	6	7
7	Encourages the use of uniform procedures/protocols.	1	2	3	4	5	6	7
8	Explains to me how to perform certain procedures/practical skills.	1	2	3	4	5	6	7

Perceived value of feedback with regard to WPBA (Workplace based assessments)	Strong ly disagr ee	Disagre e	Mostly disagr ee	Mostly agree	Agree	Strongly Ag
Items 1-3 validated by Ashford (135) cronbachs alpha 0.72						
Items 4-6 based on work of Morrison and Bies (138)						
It is important to me to receive feedback on my performance.	1	2	3	4	5	6
I would like to get more feedback when I complete WPBA so I can get better at my job.	1	2	3	4	5	6
I find feedback on my performance when undertaking WPBA useful.	1	2	3	4	5	6
My boss is good at giving me constructive feedback when we complete WPBA.	1	2	3	4	5	6
I think my boss would think I was being pro-active if I asked them for feedback using a WPBA.	1	2	3	4	5	6
I like to ask for feedback as part of a WPBA when I think I have completed a task well and made a good impression on my boss (looked good).	1	2	3	4	5	6
Perceived costs of feedback with regard to WPBA (Workplace based assessments)	Strong ly disagr ee	Disagre e	Mostly disagr ee	Mostly agree	Agree	Strongly Ag
Instrument validated by Ashford (135) cronbachs alpha 0.8						
I think my boss would think worse of me if I asked for feedback during a WPBA.	1	2	3	4	5	6
I would not be nervous about asking my boss how they rated my performance when completing a WPBA. (R)	1	2	3	4	5	6
It would not bother me at all to ask my boss for feedback. (R)	1	2	3	4	5	6
It is not a good idea to ask your boss for feedback using a WPBA; they might think you are incompetent.	1	2	3	4	5	6
I find it embarrassing to ask my boss for feedback when undertaking a WPBA.	1	2	3	4	5	6
I would <u>not</u> be nervous about asking my surgical team how they rated me when we were using a WPBA. (R)	1	2	3	4	5	6

In order to find out how well you are performing in your job how frequently do you,

Feedback monitoring and inquiry Feedback monitoring items (1-6) adapted from validated items by Fedor (137) cronbachs alpha 0.74. Feedback inquiry items (7-12) adapted from validated items by Fedor (137) cronbachs alpha 0.81 and Ashford (136) cronbachs alpha 0.83.	Very infrequently	Infrequently	Some times	often	Frequently	Very frequently
I find myself eavesdropping on other consultants to get different points of view	1	2	3	4	5	6
I pay close attention to how my consultant acts towards me in order to figure out where I stand	1	2	3	4	5	6
I keep my ears open in case my consultant has any useful tips	1	2	3	4	5	6
I pay close attention to the feedback my consultant gives other trainees when using WPBA and at other times	1	2	3	4	5	6
I pay close attention to how my consultant acts towards other trainees.	1	2	3	4	5	6
I compare my performance to that of my peers.	1	2	3	4	5	6
I ask for feedback from my consultant about my performance when we are using WPBA	1	2	3	4	5	6
I ask my consultant for additional feedback when I am undertaking a WPBA	1	2	3	4	5	6
I ask for feedback when my consultant is completing the online WPBA form	1	2	3	4	5	6
I talk to my consultant in general about my clinical performance	1	2	3	4	5	6
I ask my consultant for feedback about my performance when we do an operating list together and <u>not</u> using a WPBA	1	2	3	4	5	6
I like to ask for feedback from my consultant when we are not using WPBA	1	2	3	4	5	6

Appendix 2b. Trainer questionnaire; Questionnaire for trainers who complete Workplace Based Assessments (WBA)

Please ring the most appropriate response or insert a number

How many years have you been a consultant?			Male	v	Female
<5 years	5 -10 years	>10 years			
Are you a					
Educational supervisor			training programme director		
Have you received formal training in using WPBA?					
Yes v No					
Have you attended a Training the Trainers course?					
Yes v No		<3 years ago	>3 years ago		
Have you attended a Training and Assessment in Practice course?					
Yes v No		<3 years ago	>3 years ago		

How many of the following WPBA have you completed for trainees (CT1 to ST9) in the last year?

CBD	nil	<10	10 – 20	>20
Mini CEX	nil	<10	10 – 20	>20
Surgical DOPS	nil	<10	10 – 20	>20
PBA	nil	<10	10 – 20	>20

Please indicate below how easy you think it is to complete these assessments?

VERY EASY 1 2 3 4 5 6 VERY DIFFICULT

Please indicate how easy you find it to access the on line form to complete these assessments?

VERY EASY 1 2 3 4 5 6 VERY DIFFICULT

Formative (for learning) v summative (to chart progression)

How much do you think WPBA represent an opportunity to LEARN?

NOT AT ALL 1 2 3 4 5 6

How much do you think WPBA represent a TEST of trainees progress?

NOT AT ALL 1 2 3 4 5 6

Where you think WPBA's sit between a learning and assessment tool based on your experiences in using these tools?

LEARNING 1 2 3 4 5 6 ASSESSMENT

Structure/delivery

How much time do you spend giving feedback to trainees in relation to WPBA?

	Nil	<10 minutes	10 – 20 minutes	➤ 20minutes
CBD				
Mini CEX				
PBA				
Surgical DOPS				

How long after WPBA are undertaken does feedback occur?

	very infrequently	infrequently	sometimes	frequently	very frequently
Immediately	1	2	3	4	5
<24 hours	1	2	3	4	5
1 – 7 days	1	2	3	4	5
>1 week	1	2	3	4	5

Where does the feedback take place?

in public one to one electronically

What educational or logistical factors affect your ability to complete these assessments?

.....
.....

Feedback

Do you think that you give feedback to trainees when completing WPBA?

Yes v No

Are there any specific circumstances when you find using WPBA help you give feedback to trainees?

.....
.....

Please indicate on the scale below your experience in providing negative feedback to trainees?

EASY 1 2 3 4 5 6 DIFFICULT

Do you repeat WPBA of the same task to identify change in trainee performance?

Yes v No

Do you think that trainees improve their performance based on feedback when doing the same task again?

Yes v No

Do the forms allow progression to be documented?

Yes v No

Do you ever get watched/appraised on your feedback skills?

Yes v No

Would you find this opportunity valuable?

Yes v No